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HOW TO DETERMINE THE ADMIXTURE OF ORGANIC OR INORGANIC SUBSTANCES IN RYE AND WHEAT FLOUR.

(Prize essay of the German Millers' Association by Dr. L. Wittmack, Professor of the Agricultural College at Berlin.)

Translated by THE MILLING WORLD.

VI.

WHEN we examine a quantity of the prepared paste under the microscope, we find in addition to the hairs, fragments of bran, which again aid us in determining the question of mixtures of rye and wheat. As stated before, the cells of the wheat bran in the circular layer are often much more elongated, and their walls in a cross section have a more pronounced resemblance to a string of pearls, than the corresponding portions of the rye. But neither the length of these cells in wheat and rye nor the width are reliable signs of distinction, if taken alone. Especially in the one-grained corn, *Triticum monococum*, the difference between it and rye cannot be detected in this manner. Generally the cross section of a rye bran cell shows that its walls are very thick at the ends, while the same places in wheat are very thin; the rye cells are not pressed as close together as those in wheat, and small air spaces remain between them, which show dark, almost black, under the microscope, as intercellular spaces.

The cells of the longitudinal as well as of the circular layer of the rye bran, color more intensely yellow upon the addition of a drop of a sulphate of anilin solution, than the cells of wheat bran. With the naked eye we can then easily detect the almost gold-yellow rye bran particles. In addition to this, the gluten cells of the rye, as well as the majority of the gluten granules, are smaller than the corresponding portions of the wheat. But the cells of the circular layer of the bran give us the best information. Of course we do not often find them in their full and unbroken form, but even the smallest fragments show the very decided resemblance of its walls to a string of pearls. These cells in wheat are 114 to 192 mkm. in length; in rye, only 72- to 90 mkm., the thickness of the cell walls of the former are, however, 5.8 to 8.7 mkm., while the latter measures only 3.5 to 5.0 mkm. While this difference has been known for some time, the difference in the hairs of wheat and rye has never been demonstrated before, although it affords such a striking point of distinction.

The difference in the size of the gluten granules is not reliable enough. While they average in rye 1.5 to 2 mkm., and in wheat, about 3 mkm., we find rye granules as large as the largest wheat granule, and besides, it is exceedingly difficult to tell whether we inspect a single granule, or two or three adhering to each other, because their shape is variable, and they are mostly surrounded by a layer of fat. To demonstrate the difference between gluten granules and small starch grains, we must spread a minute quantity of dry flour upon the object glass, and add a drop of an *alcoholic*, not a watery, solution of iodine. Then the gluten colors yellowish brown, but the starch remains white. It takes the characteristic blue color after the alcohol has evaporated, and this increases the difficulty of discovering the gluten granules. It must not be forgotten that iodine produces a blue color in starch only under the presence of water. The size of the gluten cells is also larger in wheat than in rye, as already stated in the earlier part of this essay. In coarse meal this fact can be utilized, but in finer flours the gluten cells are found very sparingly.

When we review all the differences obtained from a microscopic examination of the bran, we find the following:

	In wheat. Mkm.	In Rye. Mkm.
1. Thickness of the bran (cross section of the grain)	43- 50	31- 40
2. Cells of the external layer of the epidermis, length	116-160	136-400
Width	20- 28	26- 32
Thickness of cell walls	5.8-6.0	4.3-5.8
The pearl-like appearance of these walls	Very thick.	Sparingly.
3. The cells of the circular layer are long	114-192	72- 90
Wide	14- 17	11- 14
Thickness of cell walls	5.8-8.7	3.3-5.0
Pearl-like appearance of the walls in wheat is very close, in rye they are less close and diffuse.		
4. The largest portion of the 5 or 6-sided gluten cells have a diameter of	40- 48	32- 36
The rectangular gluten cells have a length of	56- 72	40- 64
A width of	32- 40	23 40

Many different methods have been advocated for the purpose of discovering these distinguishing elements with more ease. The hydration of the starch on the object glass itself, by means of a weak solution of caustic potash, has often been used with good results. With this method the hairs are, however, in danger of swelling with the starch grains, so that their interior canal contract to such an extent, that the characteristic difference between wheat and rye is obliterated. This method can now be rejected altogether, for a hydration, at a temperature of 62½° C., answers the purpose far better. Steenbush, in the proceedings of the German Chemical Society, advocates the hydration of the starch with a subsequent transformation into dextrine and sugar. The residue of the solution contains the bran particles and the albuminoids. This method is given as follows:

A homogenous paste is made of 10g. of the flour to be tested and 30 to 40g. of distilled water; to this is added, under constant stirring, 150g. distilled boiling water which hydrates the starch under a temperature of 75 to 80° C. A malt extract is made by mixing 20g. of ground malt with 200g. of cold water. Shake repeatedly during one hour and filter through double filtering paper. When the paste has cooled down to about 55 to 60° C., add 30g. of the filtered malt extract, stir well and place in the water bath for 10 minutes at a temperature of 55° to 60° C. The solution is then washed several times with a larger quantity of water, mixed with a one per cent. soda solution, and exposed for a short time to a temperature of 40° to 50° C., sufficiently long to dissolve the gluten, which turns yellow. The washing is then repeated and the final residue contains all the substances of the flour with the exception of the starch and the gluten. This method is not as efficient as the first described hydration test, where special stress is laid upon the structure of the hairs. There are many hairs in the malt, and in spite of the double filter some of them find their way into the solution and cause serious errors. An easier method for the removal of the starch consists in boiling it for several hours with dilute muriatic acid. This transforms the insoluble starch into soluble glucose and the residue contains the bran particles and hairs, although the boiling with acid changes their appearance and they look distended and indistinct. Sulphuric acid can be used in place of muriatic acid; lactic acid has also been recommended recently, but for the purpose of detecting adulterations, one is as good as the other.

Another method for the separation of the starch and gluten from the other tissues has been discovered by Mr. Kiaerskow of Copenhagen. Knowing that a $\frac{1}{10}$ per cent. of soda solution dissolves the albuminoid substances of the flour, he subjects his sample to such a fluid for 24 hours. This fluid is then carefully removed without disturbing the sediment and replaced by an equally large amount of clean water. Shake well and allow it to settle. The lowest part of the sediment is formed by the largest starch grains. On this we find a layer of bran particles, hairs, etc., and a mixture of large starch grains, and on the top we have a deposit of the smallest starch grains. Careful manipulation permits the separation of the bran particles from the rest of the sediments for examination. These investigations of Kiaerskow originated through a dispute of Danish flour merchants and the Swedish Custom House, which latter claimed that the imported rye flour, which is duty free, was mixed with wheat flour, which has to pay a tariff. All those methods agree in directing their efforts towards a separation of the bran particles from the flour. None of them offer anything better than my own method, which in the mixing of the flour with 50 times its quantity of water and heating to 62½° C., gives us plain indications in the distension of the starch grains, as well as in the shape of hairs and bran particles, whether the sample contained a mixture of rye and wheat flour or not.

Another method has very recently been advocated by Mr. W. H. Symons. He states that it is possible to detect the different varieties of starch grains by their unequal expansion when subjected to the action of caustic soda solutions of different strength. He mixes $\frac{1}{10}$ g. of starch with 1 ccm. of the soda solution; after ten minutes and a repeated shaking, one drop is placed under the microscope. In a solution of caustic soda the result was as follows:

Name of Starch.	A few expanded in a solution of	The majority expanded in a solution of	All expanded in a solution of
Potato	0.6 per cent.	0.7 per cent.	0.8 per cent.
Oats	0.6 "	0.8 "	1. "
Wheat	0.7 "	0.9 "	1. "
Corn	0.8 "	1. "	1.1 "
Rice	1. "	1.1 "	1.3 "

He gives no figures for rye. I have tried this method repeatedly and found it correct; but the strength of the solutions given was too weak. I took three times the quantity. I also found that the rye starch grains expand in a solution less concentrated than that necessary for the expansion of the wheat starch, as could be expected from the difference in the temperature of their hydration. In mixtures of rye and wheat I have been unable to obtain satisfactory results, by the use of this method, and do not care to recommend it at present for the purpose of detecting adulterations. The differences in the expansion of the starch grains when heated to 62½ C. is much more distinct and reliable in mixtures of different flours, and therefore more practical.

INDIAN WHEAT.

Anything which can throw a little light upon the condition of the wheat production in India, must be of interest to American wheat producers as well as millers, and all the latest investigations are well worth knowing. The British Government seems to be doing their best to collect data in every way, and is at present especially interested in the Indian railroad question, knowing that the price of Indian wheat in England will, in a large measure, depend upon the transportation facilities offered to the Indian wheat producer. "Several witnesses," the *Mark Lane Express* tells us, "have been examined, some of them sent over by the government of India, and some of them representing the home government; but their evidence has almost exclusively related to the financial side of the inquiry, and to the comparative merits of the broad and narrow gauges. A retired Bombay official, Mr. Lionel Ashburner, gave the committee a brief but vivid glimpse of the state of things at many of the up-country stations in the Bombay presidency. He stated that the extension of railways in India was not a mere money question for the government of India, but the present inefficiency of the railways to carry off the produce of the country was a very serious matter for both producers and merchants. Goods at the great centers of produce up-country flooded the railway stations, and were piled in masses over each other in consequence of the deficiency of the railway rolling stock. This state of things demoralized the company's subordinate servants, who were bribed by the merchants to give the conveyance of their goods the preference over the goods of others, so that they might have them first at the coast. The higher class of railway servants were pure enough. From the choked-up condition of the stations the goods which could not be got at were often completely destroyed by white ants or by exposure to the sun, or, during the monsoon, to the rains. This state of things prevented merchants from making contracts for steamers or for delivery of produce. He had heard of merchants being ruined by demurrage, and often when they chartered a steamer, they were unable to make use of it in consequence of not being able to get their goods out of the station. Another witness, Mr. Robertson, formerly the manager of one of the Indian Exchange banks, and at present a director of several Indian railways, gave it as his opinion that the large development during the last year or two of the Indian wheat trade was greatly attributable to the low state of the exchange, inasmuch as it enabled the merchant to give the cultivator a much better price for his produce. In fact, wheat could not have come from India, to anything like the same extent, but for the low exchange. As bearing upon this point, several of the witnesses have expressed a decided conviction that any extensive increase of railway construction will raise the rate of exchange, and if Mr. Robertson's view is correct as to the low exchange having stimulated the cultivation of wheat, the wheat trade cannot fail to receive a check by anything which will rehabilitate the ru-

pee, unless the railway companies or the committee can see their way to save corresponding reduction in the railway charges as a compensating influence."

It seems that there are a large number of difficulties to overcome, before the Indian wheat can play as important a figure on the European market as English merchants desire, and it will necessitate years of hard labor before the necessary favorable conditions can be procured.

INTERNATIONAL PROTECTION.

The effect of American competition upon the agricultural interest of Austria-Hungary, has been carefully studied by Dr. Alexander Peez, a member of the Austrian Parliament, and an abstract of a pamphlet written by him on the subject, and printed in the report of the Department of Agriculture, may be of interest to the readers of THE MILLING WORLD at the present time, when the "free trade and protection" discussions are pervading all classes of society.

Great Britain, he says, is superindustrial. Her commercial policy is simple, its object is the opening of all markets to the products of English industries. In her policy she has not been altogether unfair, since she granted to other countries the free markets she demanded. Whether or not, this feature is more ostensible than real, we shall not discuss here. As shown by the restrictive measures adopted by England with regard to the importation of live stock from the European continent and the United States, the measures of British trade policy are only so long in force as British interests are thereby furthered.

The two other great powers, on the contrary, Russia and the United States, have from the beginning taken a different stand. They force their way into commerce, flood Europe with farm products, and then close their markets to European manufacturers. Europe would overlook a few bad features arising from the wholesale shipments from Russia and America, and receive with open arms, their production, if the latter could only be paid for by European manufacture. The trouble, the injustice, lies in the want of reciprocity.

Under these circumstances, an international protection against American and Russian competition would have been in order, and the initiative ought to have been taken by England, the heaviest recipient. If she had united with the Central European States, and had asked of Russia and the United States a reduction of their high protection tariff, by way of compensation for allowing the crude products of those two countries to enter as heretofore, free of duty, or with a slight duty on them, then a demand like this might have been successfully entertained. Russia, owing to her critical condition, would hardly have resisted very long. But such an initiative was not taken. When protection against the commercial policy of Russia and America was spoken of, only British measures were thought of in England. The idea then was broached of making the United States, by a duty upon the production of her soil, help to pay off the real estate indebtedness of Ireland; furthermore, a union of Great Britain, and her dependencies was discussed, which was to be protected by a differential tariff. At a meeting held in June 1881, Stanly Hill said: "We ought to import our grain, our bread stuffs, and everything that can be produced in our colonies, from these colonies only; and the latter ought to buy all the industrial wares they need from England, their mother country. Then America, France, and Russia will speedily drop their tariffs."

But all these propositions were not favorably received; and he who knows the commercial policy of England, and particularly that of the liberal ministry, cannot long be in doubt as to the motives. If we examine these conditions and consider the peculiar position of the three leading economic powers, (Russia and America being independent of foreign markets, as far as the products of agriculture and of the industries are concerned, in fact, shutting themselves off from the European industries, while Great Britain looks up every market for manufactures in the world, and takes possession of it for her fast-growing industries,) it would seem important that France, Germany, Austria-Hungary and the smaller States, should by means of a union, try to countervail those three great powers. They ought to form among themselves a union with high foreign duties and low internal revenue taxes, and from this advantage ground treat with the other powers for mutually free conditions.

This idea for forming a central European union is not a new one, but its execution lies wholly in the political field, and only a due appreciation on the part of the leaders or very great calamities will tend to remove the natural hindrances and opposition to this plan. The more distant therefore the time, the more's the pity. When international action takes place with regard to American competition, the more necessary is home protection by means of strengthening and concentrating all productive factors.

We come to the conclusion: It may be well or not, but the different States are more and more assuming the character of large corporative unions, not to say "business corporations," for the purpose of securing the greatest possible share of earthly goods for all classes of society. The two great Anglo-Saxon States, of which one by the end of this century will have 100,000,000 population, and the other with its colonies over 300,000,000, are already beginning to steer into this channel, and are compelling, by their competition, other body politics to follow their example. He that does not wish to step back and be crushed, must keep on. Quiescence and romance are disappearing from the world. The old States of the European continent must appropriate a drop of the American blood. Cherished dreams and ancient prejudices are no longer tenable. How will the overburdened bear up in this cruel race-track? And will there be any room left for the support of natural bickerings?

In the sixteenth century American competition ruined the mining industries of Europe; changed the direction of the world's commerce; brought about by the increased amount of precious metals, a revolution in prices; transformed the social conditions, and prepared the civil war of the seventeenth century, the thirty year's war. May the competition of America in the nineteenth century lead to more happy results. No doubt it is the greatest economic event of modern times. Whether it will prove a blessing or a curse, depends upon the good judgment and energy with which the governments and people of Europe will meet it.

THE RELATION OF AGRICULTURE TO OTHER INDUSTRIES.

While agriculture is a foundation interest on which others are based, and by which others are supported, in the sense of furnishing the alimentation on which their labor is performed, it can only reach its highest estate in the midst of varied industries, if we are to believe the statistics compiled by the Department of agriculture. The dignity of the farmer's position, his independence, his control of the means of comfortable living in a high degree, are constantly asserted, and acknowledged relatively rather than absolutely. If true, dignity should not be erected as a bar to progress, and independence becomes exclusiveness, which shuts out all plebeian industries. If it becomes first an isolated aristocracy, it will soon be as poor as it is proud. The industries thrive together; it is next to impossible to touch one without affecting the others. The solidarity of human industry is a fact that is proven in the industrial progress and development of every country.

Three hundred years ago Virginia stood as to-day in resources of nature, a beautiful desert, with only spontaneous crops growing upon her soil, deer and turkey her only cattle, her waters simply a breeding place for fishes, her lands without a market, her ores and coals lying worthless below the soil. Agriculture, manufactures and commerce were practically unknown. Two hundred and sixty years of agriculture have failed to produce that prosperity that sixty years would have brought with a suitable combination of all the industrial arts. Naturally agriculture comes first, but other industries must follow, or rural arts will pine and struggle through a dwarfed existence. Virginia has heretofore held too exclusively to the idea of dignity and independence of agriculture. She has hitherto sought wealth in the soil, but is now finding it in the coal mine, the iron ores, the dense forests, the enduring water-falls, and a thousand sources of production which are in their utilization rounding into symmetry, and giving volume and momentum to the grand whole of Virginia industry.

Pennsylvania had a later and slower development. She has no seacoast, and is almost destitute of natural waterways and great aqueous basins for food-fish supplies. But Pennsylvania acted wisely and promptly upon the true theory of industrial development, that it should be various and symmetrical, furnishing lucrative employment for male and female, old and young, indoors and in the open air, unskilled and rough, as well as nicely adjusted to the peculiar tastes and finer aptitudes of the delicate and refined, who are suffering for something to do.

More than half of the people of Virginia are farmers; only one in five of the Pennsylvanians are engaged in agriculture. Does the greater number in the former state make a greater demand for land and higher prices by reason of the competition? No, the competition is between one farmer and the other in the sale of produce for which there is no near market; and the cheapening of products also cheapens the acres on which they grow. So, Virginia farm lands are valued at $10.89 per acre, while those of Pennsylvania command $49.30, So says the Census of 1880. It also says that the average farm worker of Virginia produces crops worth $180, while the Pennsylvania agriculturist gets $431. Why is this? Because of the other four mouths seeking to be filled and competing for the supply. Besides, high prices are a stimulus to large production, and fertilizers are more abundant in a district full of towns and villages.

These are not isolated examples. We see similar causes producing like effects in other states and in other countries throughout the working world. It is the result of a natural law which may be formulated thus: Values in agriculture are enhanced by increase of non-agricultural population.

THE STRENGTH AND WEAR OF BUILDING MATERIALS.

The question of the rapid crumbling and disintegration of mineral building materials, is one that architects and builders throughout the entire country should be interested in, says the *American Architect & Building News*.

A sample of material may respond favorably to all the known tests to determine its strength and elasticity, and still show evidence of short life when placed in the walls or foundations of a building. Especially is this true as regards stone. To begin with, when we estimate the value of any variety of stone for any specific purpose, we must keep in mind the circumstances and conditions around and under which it is to rest, and do service:—

1st. In the average climate of America it will have to bear in the direct rays of a July sun, a heat of 120 deg. Fahrenheit on the outside, while inside it may not be more than 70 deg. Fahrenheit.

2d. In winter it may be exposed to an exterior temperature of 20° Fahrenheit below zero, and an interior heat of 70° Fahrenheit above zero, or 90° of difference; and though mathematics is of no aid in enabling us to determine and point out that fine point where these opposite forces of contraction and expansion meet, that we may partially provide for it in the upward and downward pressure, it amounts to the most gigantic force known, which has an effect in destroying the molecular cohesion of the particles constituting the stone. It must give to one side or the other under the enormous force applied on that side, and reversed on the other, besides the great pressure to which it is constantly subjected by the stone above, and the resistance afforded by every stone from the very foundation until it is reached.

3d. The great majority of building-stones show upon analysis traces of calcium, terrous oxides, etc. The larger number of buildings constructed of stone are located in cities and towns where coal is used for fuel, the fumes of which coming in contact with an atmosphere already impregnated with other elements, forms those acids and gases, which uniting with the elements of the stone cause disastrous results.

It is no wonder, then, that immense walls, apparently compact and homogeneous open in cracks, split off in layers, and burst in pieces.

4th. A stone newly taken from the quarry loses in weight by exposure by the evaporation of its natural moisture; this leaves all these minute interstices or pores invitingly open to rains and atmospheric moisture; hence when the frosts of our northern winters come, it is no wonder so many walls are out of line, and unsafe without repairing or renewal. This force of frost during the past winter, even in the South, puts to shame the power of a Corliss engine or hydraulic press.

The dilapidation produced by alternate freezing and thawing; the changes from protracted droughts to incessant moisture; from excessive heat to cold; the difference of temperature at the same moment between the opposite sides of the same block, the tendency to split off, and the lamination of unequal densities, and many more, are all grave obstructions to the use of building stone in this climate that would sink into comparative insignificance in other countries.

That many buildings become unsafe, and innocent persons get the blame, there is not the least doubt. A magnificent structure falls with a crash, the builder is berated, the architect censured, when if the truth was known, in many instances the silent, subtle influences mentioned above had been at work, and no one was to blame.

Before proceeding farther with our discussion, we will consider the condition of material under pressure, and subjected to tension.

If we take a piece of wood, and carefully estimate the force required to tear it asunder, we will notice that lengthwise of the grain requires the greatest force. If we subject it to pressure across the grain, for every degree we bend it we find this resistance increased 11.617 per cent. (an average of thirteen varieties of wood tested), increasing in direct ratio until sufficiently bent to displace its molecules, when, of course, its strength

decreases rapidly. Timbers, then, subjected to a certain tension in a building will outwear those not subjected to it. Again, a timber bearing a certain number of tons of weight for a certain length of time, will bear a much heavier weight without being unsafe, than if the timber having lain idle, as it were, should afterwards be loaded. This increase of strength is quite striking, as may be proved by the following experiment:—

Three pieces of some brittle wood carefully made of equal size. are placed side by side, with the ends resting on some firm base, and on one is placed 100 grams, and on another 500 grams, and they are then left for a week or more in a warm, dry situation. The one bearing the greatest weight will have bent the most, and will bear more added weight than the more lightly loaded piece, while the same weight placed on number three will break it. This proves conclusively that a certain weight placed on a timber, renders it capable of bearing one still greater subsequently. A timber with all it will bear without displacement will actually bear more additional weight subsequently, and keep on increasing in both its wrenching and tensile strength than if it is laden one-half as heavily at the outset.

Viewed with the microscope we find that the instant wood is bent out of the true the fibres become closer at the bend or angle. Now if the pressure is continued just far enough to bring these in actual contact without force sufficient to mar or bruise them, they adapt themselves to the situation and are absolutely glued together by the gummy substances liberated by the cells ruptured in the bending.

Furthermore, timbers subjected to pressure will decay less rapidly then when not. A stick of lancewood bent double, and the ends made secure, and the same exposed to the influences of decomposition will show the effects much sooner in those portions which are not bent, than where the sharp angle appears; moreover, a stick actually broken in bending will not rot so soon at the break as at some distance from it, and fungous growths rarely appear at the point of bending as soon as elsewhere.

At first sight it would appear that, subjected to constant pressure, wood would undergo the same change as iron, but experience has demonstrated the contrary. In some of the ancient ruins of Europe we notice this fact; that those portions which apparently sustained the greatest pressure, such as roof-trusses, gables, etc., were in a much better state of preservation than the joists which were merely supports for nailing, etc. All who have visited "Ducky Hall," in Lincolnshire, will recall, perhaps, in the east wing of those massive ruins, some bits of curved cornice apparently in an excellent state of preservation, while all around has long shown evidence of advanced decay. For a long time it was supposed that this round coping was of metal, but when a few years ago this wing or tower blew down it was found to be a species of deal, which had been forcibly bent and secured while green,—probably, at the time of the building of this castle, little if anything was known of steaming,—and when these boards were released from the pressure to which they had been submitted for centuries, they began to take their original or straight form; of course, but partially; nevertheless, the ends sprang apart nearly an inch when liberated, showing conclusively, that with all the influences which had been at work destroying the adjacent woodwork, these boards subjected to this pressure had not lost their power of attempting to return to their original shape.

AFTER THE STORM.

Speaking about the recent financial difficulties in New York, the *Bankers' Magazine* says: Going beyond the banks it is easy to see what disorder has befallen the country. Speculation is a poisonous tree that has been growing with constantly increasing rankness. Exchanges have multiplied in all directions, which have operated immensely to stimulate the spirit of gambling. It has done much to unsettle and destroy the legitimate business of the country. When wheat is sold to-day for a dollar a bushel, and to-morrow is driven down five cents through sheer speculation, one can readily understand what an evil genius is speculation towards profitable trade and enterprise. If the exchanges of the country were closed, and forever, it would doubtless be the greatest boon that legitimate business could receive. Doubtless these institutions have been useful in some ways, but their power for evil is gigantic, and this is the very reason why they have multiplied so rapidly. They do much to enhance or depress prices too greatly. In other words, speculation is a pendulum which is continually moving beyond its proper arch, and legitimate business, in consequence, is continually suffering. It is a perfectly rational thing to say that legitimate business cannot be restored until the head of speculation is broken. The one is irreconcilable with the other. Both may exist to a considerable degree, but even when this is the case it is unquestionably true that legitimate business would be still more healthful and vigorous if speculation did not exist.

For a long time losses of a speculative nature have been very great. Prices have been constantly marching downward. The losses sustained must be borne by some one; they were not fictitious losses, but real ones. We are beginning to find out where they are, and who must sustain them. Whether we have reached the end or not, cannot be predicted. One thing is certain, however, these speculative losses are not injurious to general business. On the other hand, its improvement will come all the more quickly through quenching the fires of speculation. If speculators should ever desist from their disturbing occupation the country would have reason to rejoice. There is nothing alarming to anyone in consequence of the failures that have already occurred. It is simply the bursting of dangerous speculative explosives, which ought never to have existed, and whose destruction can never come too soon, nor be too complete.

WHEAT.

Wheat is supposed to have come originally from Asia, north of the Himalaya mountains, where it grew wild. Corn comes from South America. Wheat was first grown on the American continent by a slave of Cortez in Mexico. The James River settlers, under instructions of the Indians, began to raise corn in 1608, Samples of wheat were sent to Europe from the Dutch colony of New Netherlands as early as 1626. As early as 1630 "rye and Indian" bread was becoming fashionable, and oats and barley were cultivated as soon as rye. The growth in the grain area has been almost unbroken, and at a very early day the colonists had a surplus for export. From 1870 to 1880 there was a very rapid increase in the grain production until in the latter year it reached 2,718,193,501 bushels. In 1881 it fell off no less than 650,000,000 bushels. For 1884 it is now anticipated the total crop will be the largest ever grown. New England, the South and the Middle states do not produce enough wheat to supply their own wants, but the South is rapidly increasing her acreage of both wheat and corn. The export trade in grain has been a regular and important business since 1821. Prior to that it was spasmodic and intermittent. Often, as late as 1837, the home wheat crop was not equal to the consumption and imports were made from Europe.—*Ex.*

Le Fermier, a French agricultural paper, gives a new process for making bread. It consists simply in dissolving a certain quantity of glucose in the warm water with which the dough is mixed. The dough rises rapidly and makes a very light and palatable bread. The theory of this proceeding is explained as follows: "In the ordinary process the starch of the flour is changed to dextrine, then the dextrine is converted to glucose, which is decomposed, evolving carbonic acid, which causes the dough to rise. Thus fermentation eliminates the starch of the flour and diminishes the quantity of bread. The new process avoids this destruction of starch. The glucose combines with the yeast, and is converted into carbonic acid, which raises the dough. There is thus obtained, with economy of time and labor, a bread which is more nutritious, and of better quality." The proportion of glucose to be used is not stated, and can only be determined by experiment.

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Indianapolis, Ind.

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Advertisements under this head, 25 cents each insertion for 25 words, and 1½ cents for each additional word. Cash with order. Three consecutive insertions will be given for the price of two.

SITUATION WANTED.

In a custom grist or flouring mill by a man who has had about two and one-half years' experience as a miller, and can furnish best of references. Address, T. H. NICHOLAS, Forestville, Chautauqua County, N. Y. 6tf

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Advertisements of ***Mills for Sale or Rent, Partners Wanted, Machines for Sale or Exchange,*** *etc., etc., cost 1½ cents per word for one insertion, or 4 cents per word for four insertions. No order taken for less than 50 cents for one insertion, or $1 for four insertions.* ***Cash must accompany the order.*** *When replies are ordered sent care of this office, 10 cents must be added to pay postage.*

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Wanted immediately, a competent miller to take charge of a custom mill. Steady work and fair wages to the right kind of man. Address, with terms and references, F. B. MAYHAM, Hobart, N. Y. 1316

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One 6-horse power engine and 10-horse power boiler, all complete, price, $350; one 8-horse power engine and 10-horse power boiler, price, $375; one 10-horse power Portable complete, price, $350; one 10-horse power Russell Traction, price, $500; one 4-horse power vertical engine, price, $120. Call or address for particulars EZRA F. LANDIS, Lancaster, Pa. 262

YOU CAN BUY THESE CHEAP.

1400 4x3 elevator cups. } made by W. P. Myer,
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Three McCully Corn Cob Crushers.
Each of the above articles is brand new, in perfect condition, just as they left the factories, never having been unboxed, and will be sold very cheap for cash. Address S., 30 care THE MILLING WORLD, Buffalo, N. Y. tf

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Water mill at Whitehall, Trempeleau county, Wis. Mill built in 1878. Five run of stone. Mill easily converted into roller mill. Plenty of water all seasons. Good custom trade. Can command trade of Wisconsin Pinery. Home demand for all. Wheat supply from first hands. Mill forty rods from Depot. Side track to mill can be procured. Whitehall is a thriving town and county seat. Good reasons for selling. Address, WHITEHALL MILL CO., Whitehall, Wis. 7tf

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We have for sale a 125-barrel mill, with fifty acres of land, at Hagerstown, Ind. This mill has recently been remodeled at a cost of $14,000. Fine wheat section. Good home market. Also low freight rates to Cincinnati and Baltimore. Property cost $25,000; will be sold for half that amount, on easy terms, to parties who have money to run the business. For further particulars address SINKER, DAVIS & CO., Mill Builders and Furnishers, Indianapolis, Ind. 1013

MILL FOR SALE.

I want to sell one-half interest in the "Brick City Mills" and water power. Mill building is of brick, 40x80 feet in size, and six stories high. Fitted out complete with seven sets of rolls and four pairs of burrs. Thoroughly repaired last August at a cost of between $4,000 and $5,000. Turkey river is here 200 feet wide, with rock bottom and sides, making one of the cheapest powers to maintain in the state. The power is double the amount ever used. Price for half interest is $11,000. Address J. G. BOTSFORD, Clermont, Iowa. 913

BEST OPENING IN THE UNITED STATES.

We have recently remodeled a hominy mill with flour machinery, at Omaha, Neb. Omaha has 50,000 people, and is without a flouring mill. Kansas and Minnesota flour sells wholesale in sacks at $3.50 per hundred weight. Northern Nebraska hard spring wheat and Southern Nebraska winter wheat can be had in quantities in Omaha at 75 and 80 cents per bushel. We will sell the property at a bargain, on easy terms, to parties who have money to operate. For further particulars address SINKER, DAVIS & CO., Mill Builders and Furnishers, Indianapolis, Ind. 1013

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We have an eighty bbl. roller mill with all the improved machinery to manufacture flour. Runs by water with an engine attached for emergencies. Have a reputation established that takes all our products at local points at the top of the market. Plenty of wheat of the finest quality ever raised, and will go to market low. No competition. Two railroads. The best opportunity to make a nice thing in milling that has been presented for years. We want to sell one-half interest to a good business man who can take charge of the financial part of the business. A man who can command for investment from six to ten thousand dollars and wants active business will find it to his advantage to address, J. H. & W. O. CADWALLADER, London Mills, Fulton County, Ill. 1213

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The Milling World
and CHRONICLE of the GRAIN and FLOUR TRADE.

PUBLISHED

EVERY THURSDAY MORNING.

C. A. Wenborne, Proprietor.

Office, Lewis Block, cor. Washington and Swan Streets.
BUFFALO, N. Y.

MR. THOMAS MCFAUL is the authorized agent and traveling correspondent for this paper.

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ADVERTISING.

Card of Rates sent promptly on application Orders for new advertisements should reach this office on Tuesday morning, to insure insertion in the week's issue. Changes for current advertisements should be sent so as to reach this office Saturdays.

EDITOR'S ANNOUNCEMENT.

Correspondence is invited from millers and millwrights on any subject pertaining to any branch of milling or he grain and flour trade.

Correspondents must give their full name and address, not necessarily for publication, but as a guarantee of good faith.

This paper has no connection with any manufacturing or mill furnishing business. Its editorial opinions cannot and will not be influenced by a bestowal or refusal of patronage. It has nothing for sale, but its space to advertisers and itself to subscribers.

Entered at the Post Office, at Buffalo, N. Y., as mail matter of second-class.

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THAT theory and practice do not always agree, is a fact that cannot be denied, but when we look over past history, we are forced to admit that the fault has been far oftener with practice than with theory. The happiest results have always been obtained by a combination of the two, and botany has certainly passed beyond the stage of a mere theoretical science, since the establishment of botanical gardens and experimental agricultural stations. Here we have theory and practice combined, and, although the results of their investigations may not always coincide with those obtained by the practical farmer, they are unquestionably the most reliable. The instance quoted by our esteemed contemporary, the *Miller and Manufacturer*, who has seen wheat turn into cheat, reminds us of the story of the extra dull student who missed every question in his examination, but finally braced up and answered the question, "What is the nature of the zodiacal light?" by saying he had known it but was unable to remember it just then. "What a pity," said the examiner, "the only man who could explain the nature of this phenomenon has forgotten it." During the infancy of the theory of evolution, the most able men have discussed the question whether one form of life can directly change with another form, and it seems now universally accepted by all that it can not be done, and that any change, degeneration or improvement, is of slow growth. And now comes our e. c., backed by numbers of "practical men" who have seen this very phenomenon that has so far escaped the most learned. What a pity they did not preserve the specimen; what a triumph for the evolutionist it would have been; why, a man who could successfully demonstrate the transformation of wheat into cheat would have his name engraved on the records of science, perhaps next to Darwin himself, and we cannot refrain from offering, rather prematurely perhaps, our congratulations to our e. c. for the brilliant prospect of honor and fame in store for him if he follows this line of research. But unfortunately his case is open to doubts. for it may be similar to that related by the *Indiana Farmer*, which says in its last issue: "One of our subscribers once sent us a bunch of cheat and wheat stalks that seemed to have grown from the same seed, so closely were the roots interwoven; but after soaking out the dirt we separated the two sets of roots entirely from each other, and you can satisfy yourself on the subject, going to the root of the matter in this way. Try it." The report of the Commissioner of Agriculture for 1879, p. 352, speaking about *Bromus secalinus*, (chess or cheat,) says: "It is an old tradition, which some farmers still cling to, that chess is a degenerated wheat; that the action of frost and other causes occasion the deterioration, whereas the truth undoubtedly is that chess-seed was either in the land, or in the seed sown, and being more hardy than wheat it survived the frost, and took possession of the ground." If our e. c. needs more information we suggest to him to write to Prof. Asa Gray, Cambridge, Mass., a botanist of world-wide fame, who will undoubtedly enlighten him on the disputed question, *pro bono publico*. But perhaps our e. c. classes all these gentlemen among his unreliable "theorists." Well, we cannot help that, but must be permitted to prefer the authority of the best botanists of the earth on botanical questions to that of the *Miller and Manufacturer*.

THE stimulus which art and industry derive from industrial exhibitions is undoubtedly very beneficial, but the grave question arises, can it be overdone? Are we in danger of having too much exhibition, and are honors and diplomas obtained there to become more or less valueless on account of their multitude? Are medals of merit to become so common that we cease to look upon them as a criterion of that merit which they are supposed to reward? When we look at the long list of exhibitions to be held during the next six months, the question naturally arises how much difference can exist among the leading exhibits or how many improvements can be made in so short a time? Not to mention the minor affairs in the shape of county or town exhibitions or fairs, we find the Southern Exhibition which opens on August 16, at Louisville, Ky., and runs three months; the Mechanics Institute of San Francisco holds its annual exhibition from Aug. 5 to Sept. 6; the Industrial Exhibition at Cincinnati begins Sept. 3 and ends Oct. 4. Two exhibitions open in September in Boston, one under the auspices of the Massachusetts Charitable Mechanic Association and the other under the auspices of the New England Manufacturers and Mechanics Institute. The International Electrical Exhibition of Philadelphia opens Sept. 2 and closes Oct. 11; the St. Louis Exposition opens Sept. 6 and ends Oct. 18, and the Colorado Industrial Exhibition opens at Denver in the beginning of September. Last, but not least, the International Exhibition at New Orleans opens on the first Monday in December and runs for six months. This list is undoubtedly incomplete and a few institutes or fairs may have been omitted, but the above numbers are sufficient to show that a man in search of knowledge only needs the necessary funds to keep among "exhibitions" for the next eleven months.

AMATEURS in milling journalism invariably acquire the impression that their rightful position can only be secured by attempts to show the fallacy of expressions, or opinions, given currency by THE MILLING WORLD. We lack the felicity of acquaintance with editor of our remarkable contemporary the *Miller and Manufacturer*, and this to us is a source of regret, first, because he is the latest to "put his foot in it," and second, because he has evolved a theory of such far-reaching magnitude, and of such wonderful influence, that could his name be ascertained, it would deserve transmission to posterity as a thing worthy of the highest honor and most grateful remembrance. Commenting on a little expression of ours that the present business depression was in part, traceable to our system of tariff for protection, the editor of that paper enunciates the following assertion: "Our tariff has actually been a 'potent factor' in preventing the bursting of the speculative bubble from spreading and involving the legitimate business and industrial interests in its ruins." Just how our protective tariff has operated, to prevent this we confess our inability to discover, particularly when taken in connection with the following sentence: "Our protective policy, *alone*, has saved the country from a repetition of the crises of 1837, 1857, and 1873." Such a sweeping assertion it would be idle to attempt to controvert. We are gratified to learn that our tariff system may be utilized as a "panic preventer." Our contemporary refers to the panic of 1873. Did we not have a protective tariff at that time? Let our contemporary go a little farther, and utilize this protective tariff to prevent the importation of the cholera. Let us place the duty upon foreign manufactured cholera so high, as to prohibit its importation even by the most wealthy of our citizens. With a "panic preventive" and an "epidemic prohibitor," this glorious republic ought to prosper amazingly.

"TO him that hath shall be given." George Westinghouse, before he invented and perfected his well-known air brake, was regarded by a number of his then acquaintances with something approaching pity, because of his alleged lack of "gumption." His air brake was a success, and his friends began to think there was something in him after all. His automatic engine added to his fame and bank balance, and he mounted higher in the esteem of his former friends. A few weeks ago a valuable well of natural gas was struck on his premises at Homewood, near Pittsburgh. The well is 1,580 feet deep, and the flow of gas is tremendous, the roar being almost deafening and scarcely endurable to the citizens of the neighborhood. Two other wells are being put down by Mr. Westinghouse, and he estimates that his profit therefrom will soon amount to $1,000 a day. We don't know what he wants of those wells, as he is not in straightened circumstances, but if some of those former friends don't just about bow down and worship him ere long we'll miss our guess.

THAT is a very nice custom which has been adopted by the Geo. T. Smith Middlings Purifier Co., of giving an annual excursion to its employes, and we would very much like to see it quite generally imitated by our larger establishments. We are inclined to think it is a paying investment and it certainly creates good feeling among the men. These remarks are suggested by the reception of an invitation to attend the Smith excursion which is to take place on Saturday next the 26th inst. We would be very glad to attend were it possible to do so. It is said there will be thirteen car loads—900 people—accompanied by the Geo. T. Smith band, who will leave at 6 o'clock in the morning via M. C. R. R. for Detroit where the excursionists will take boat for St. Clair, proceeding to that place across Lake St. Clair, some thirty miles up the beautiful river of the same name, to the quaint old town. A committee will be sent on ahead to make all arrangements for the culinary and amusement depatments. It is safe to say that a treat is in store for those attending.

AS a counterpart of the proposed American Exhibition at London, we are told, by a correspondent of *Bradstreets* that the Argentine Republic has shipped an extensive collection of its products to Germany for exhibition at Bremen. The products are supplemented by drawings, maps, descriptions, and everything which is capable of making the exhibit more instructive, has been done. There is a direct line of steamers running between Germany and the Argentine ports and such an exhibition cannot fail to develop the commercial relations which now exist between these two countries, the imports and exports of which have already increased from about $445,000 and $136,000 in 1875 to about $7,000,000 and $2,900,000 in 1883.

IT is beginning to be believed that the English wheat crop will be something less than an average yield, and as a consequence the demand for our surplus will be greater than, some weeks ago, was anticipated. A brisk demand upon us for wheat would soon alter the depressed condition of business, but we will have to wait yet a little before it can be determined whether such is likely to be the case. A yield of 500,000,000 bushels of wheat in this country will signify cheap food, but this alone is not sufficient to create activity in business circles. The farmer must have remunerative prices for his products else he will limit his purchases to simple necessities.

IT is the opinion of the Electro-Technical Society of Germany that the question whether driving belts can generate a sufficient amount of electricity to cause dust explosions in flour mills by the resulting sparks, can be determined only by repeated and careful experiments, although the possibility cannot be denied. Such electrical phenomena originates generally when a glued belt runs on a pulley which is sprinkled with some resinous substance, on the other hand, it is very seldom found where a well-sewed belt runs without slipping.

A COMMITTEE of the British House of Bommons has recommended a loan of $720,000,000 to India, to be employed in the construction of railways and canals. We refer to this simply because it is a bit of evidence of the intention to develope the agricultural resources of that country, and because the ultimate result of this, or similar actions, will be increased competition for American wheat in English markets.

AT the annual meeting of the German millers in 1882 a proposition was made and accepted to petition the government for the enactment of a law by which it would become obligatory on the bakers to keep correct trade accounts. At their recent meeting a report was read that the government was favorably inclined towards the proposition and that at the next revision of the laws for the regulation of trade and commerce, the necessary amendments would be considered.

SUGAR factories in Germany are forbidden by law to throw or run refuse into the watercourses to the possible injury of the water powers utilized in the various streams.

BRADSTREET'S very sensibly says we need not anticipate a revival of business confidence so long as failures show no diminution in number or magnitude.

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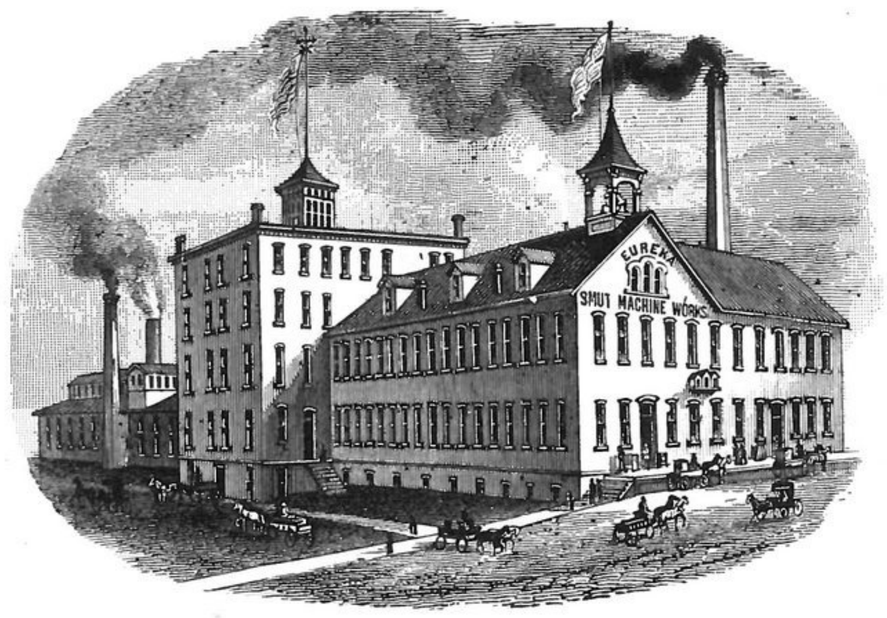

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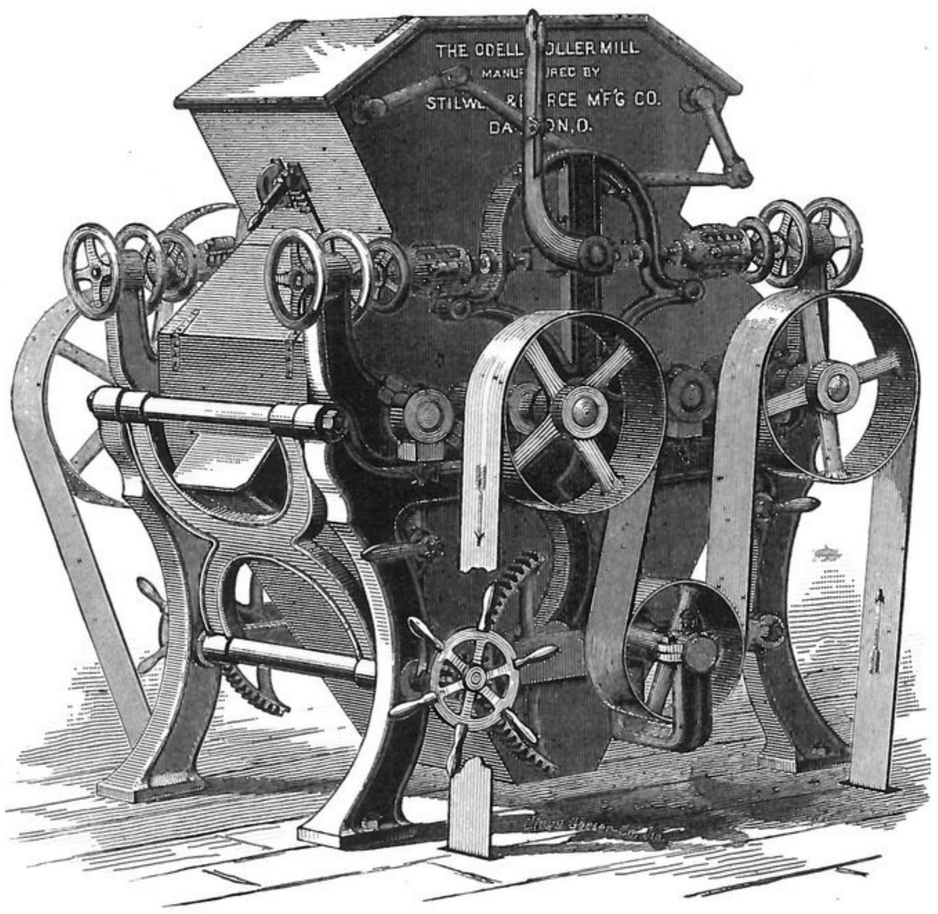

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Union Stone Co., 38 & 40 Hawley Street, **Boston, Mass.**

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GOVERNORS { For Water Wheels } **Cohoes Iron Foundry and Mch. Co.**
Send for Catalogue. **Cohoes, N. Y.**

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Buckwheat Refiner
Is the only machine whereby the greatest yields of
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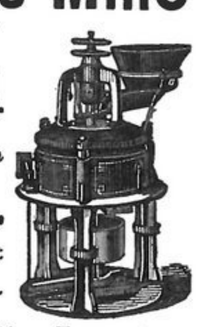

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NEW INVENTIONS

IN MILLING APPLIANCES.

BOLTING-REEL FOR FLOUR-MILLS.

Letters Patent No. 301,803, dated July 8, 1884, to Hugh Patrick Cavanaugh, of Adrian, Missouri. In the drawings, Fig. 1 is a side view of a bolting-reel constructed in accordance with this invention, part of the sieve-cloth being removed. Fig. 2 is a transverse section on the dotted line, Fig. 1. Figs. 3 and 4 are detailed views; and Fig. 5 is a detail sectional view of a portion of the reel, illustrating the arrangement of gasket or packing therein. On the shaft A, at suitable distances apart, are rigidly mounted a series of spider wheels, B, provided peripherally with several lugs, *a*, perforated and threaded for the passage of exteriorly-threaded spindles *b*. Each spindle *b* has rigidly keyed thereon a ratchet-wheel *c*. A leaf-plate, *d*, is also mounted on each of said spindles, *b*, adjacent to the ratchet-wheel *c* thereof, and carries near each extremity a gravity-pawl *d'*, designed to engage the teeth of the ratchet. A rod, D, extends longitudinally through the screen, and is secured to the corresponding end of each series of leaf-plates *d*, two rods being provided for the respective ends of each series of leaf-plates. One end of the rod is looped to form a handle, D', designed to facilitate the manipulation of said rods. The outer extremity of each spindle *b* is reduced to form a tenon suitable for entering an opening therefor formed in a bearing-plate, *e*, which rests against the inner face of a ring or annular bar, E, designed to form the outer skeleton portion of the reel. The foregoing description applies more particularly to those parts which are located intermediately in the reel structure. To provide for the extremities or end portions of the reel, the central portion of one of the spider-wheels is extended so as to present a hub, F, secured to which are the inner ends, *f*, of a series of inclined-rods, G, the outer ends of said rods being connected to the skeleton ring of the screen end adjacent thereto. The ring, E', forming a skeleton support for the other end of the reel, is connected by a series of inclined and partially-curved braces or rods, H', to an independent spider-wheel or nut, I, interiorly threaded to engage the exteriorly-threaded portion A' of the shaft A. The sieve-cloth J is placed around the frame, as partially shown in Fig. 1, and is tightly secured in position by means of a series of ring sections or bands, K, K', the ends of each section K, K', being provided with supplemental plates *k k'*, having an ear k^2, perforated for the passage of a threaded bolt L, which connects each adjacent pair of supplemental plates *k k'*. Springs k^3, embracing the respective bolts, are interposed between the ears k^2 and the bolt-head k^4, of the said bolt, and between the said ears and the nuts k^5 on said bolts.

To secure the desired adjustment the nut I is rotated on the threaded portion A' of the shaft A, so that said nut would be caused to travel in either direction, thereby moving the ring E' near to or from the adjacent ring E, and thereby lengthening or decreasing the longitudinal dimensions of the structure. The sieve-cloth J is now placed exteriorly upon the various rings E E', so as to encompass the same and be held in position by means of the clamping-rings K K', the bolts *k'* being rotated so as to cause the ears k^2, adjacent of the supplemental sections, to approach each other, thereby contracting the said ring-sections K K', and thus securely retaining the sieve-cloth in position. The springs k^3 exert a pressure upon the bolt-heads k^4 and nuts k^5, to prevent the accidental rotation of the bolts *k'* and the inadvertent loosening of the various parts. The outer parts are rigidly braced with respect to the shaft A in the following manner: One series of pawls, *d'*, of each pair of rods D are thrown out of engagement with the ratchet-wheels *c*, while the other series of pawls are moved into engagement with said ratchet-wheels. The detailed view, Fig. 4, shows the relative position of one pair of pawls with regard to a single ratchet-wheel. Either of each pair of rolls D may be moved longitudinally, which movement causes the pawls engaging with the ratchet to intermittently engage the successive teeth of the said ratchet-wheels and rotate the same, thereby causing the spindles *b* to travel radially in an outward direction in the threaded lugs *a*, and ultimately resulting in the said spindles rigidly forcing the plates *e* against the inner side of the rings E E', and thereby bracing said rings with regard to the spider-wheels B and shaft A. By reversing the positions of the various series of pawls the spindles can be retracted to their position. In most instances it is desirable to interposed a flexible or elastic gasket or packing, *i* between the rings E E' and the several clamp-sections K K'. From the foregoing it will be apparent that a bolting-reel embodying these improvements may be readily adjusted to secure any desired length of reel, and that by employing skeleton rings E E' of various diameters the transverse dimensions can be increased or decreased at will, the various devices and improvements co-acting and contributing to secure such adjustments.

Fig. 1

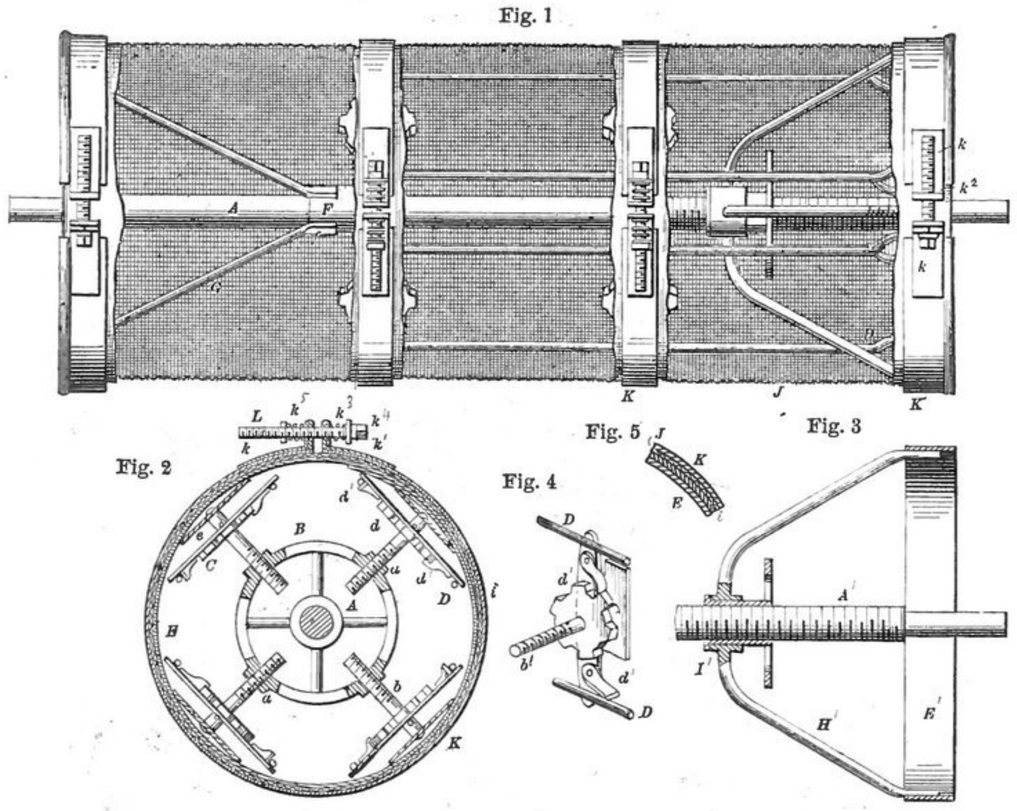

Fig. 2

Fig. 4

Fig. 5

Fig. 3

PATENT NO. 301,803. BOLTIING REEL FOR FLOUR MILLS.

ART OF MAKING GRITS.

Letters Patent No. 302,198, dated July 15, 1884, to Joseph F. Gent, Columbus, Ind. In making grits from Indian corn it was customary heretofore to simply reduce the article known as "hominy," which is made by clipping the kernels of corn, to separate the hulls and germs, which are then removed by screening and winnowing. In the process of making hominy a large percentage of the glutinous or starchy portion of the corn is lost or wasted. The object of this invention is to manufacture grits in such a way that this loss or waste of the starchy portion of the corn may be avoided. To this end proceed as follows: The corn is first thoroughly cleaned in the dry state. It is then steamed just enough to soften and toughen the germs and husks, so that they may not grind up in the reduction which follows, while the glutinous or starchy interior remains practically unaffected by the steam. The corn thus steamed is immediately coarsely ground or broken, preferably between corrugated rolls, reducing it to a coarse meal, composed of separated hulls, germs, and granules of the starchy portion mixed with some finely-reduced starchy meal. This material is at once screened, to separate therefrom the hulls, as well as the fine meal. The remaining material, composed of coarse starchy granules and germs, is then sized into grades by means of suitable screens or sieves, and then, while the germs are still soft, submitted, each grade separately, to the action of a mechanical picker or germ extractor (such, for instance, as is described in an application for a patent filed by the inventor of this process, November 19, 1883, Serial No. 112,085,) for picking or extracting the soft germs from the harder coarse starchy granules. Finally those remaining coarse starchy granules not small enough already are reduced by grinding to grits.

ART OF MAKING GERMLESS CORNMEAL.

Letters Patent No. 302,199, dated July 15, 1884 to Joseph Franklin Gent, of Columbus, Ind. In making germless cornmeal from Indian corn it was customary heretofore to simple reduce the article known as "hominy," which is made by clipping the kernels of corn, to separate the hulls and germs, which are then removed by screening and winnowing. In the process of making hominy a large percentage of the glutinous or starchy portion of the corn is lost or wasted. The object of this invention is to manufacture germless cornmeal in such a way that this loss of waste of the starchy portion of the corn may be avoided. To this end proceed as follows: The corn is first thoroughly cleaned in the dry state. It is then steamed just enough to soften and toughen the germs and husks, so that they may not grind up in the reduction which follows, while the glutinous or starchy interior remains practically unaffected by the steam. The corn thus steamed is immediately coarsely ground or broken, preferably between corrugated rolls, reducing it to a coarse meal, composed of separated hulls, germs, and granules of the starchy portion mixed with some little finely-reduced starchy meal. The material is once screened, to separate therefrom the hulls, as well as the fine meal. The remaining material, composed of coarse starchy granules and germs, is then sized into grades by means of suitable screens of sieves, and then, while the germs are still soft, submitted, each grade separately, to the action of a mechanical picker or germ-extractor, for picking or extracting the soft germs from the harder coarse starchs granules. Finally those remaining coarse starchy granules are reduced by grinding to cornmeal, which may be mixed with the find meal resulting from the first reduction of the steamed corn.

EUROPEAN PATENT LAWS.

Great Britain has joined the European Union for the Protection of Industrial Property. The filing of an application for letters patent in England gives provisional protection in all the other countries of the patent union for six months after the application is filed, and such protection enables the protected party to obtain a valid patent in any of the associated States by an application during that period, notwithstanding that since the date of the home application, but prior to the application abroad, such invention may have been patented, published, sold or used in such State or States. The States or countries constituting this Union so far are Belgium, Brazil, Great Britain, France, Guatemala, Holland, Italy, Portugal, Salvador, Servia, Spain, and Switzerland. In the agreement made by this Union the words "Industrial Property" are to be understood in their broadest sense; they are not to apply simply to industrial products property so called, but also to agricultural products (wines, corn, fruits, cattle, etc.); and to mineral products employed in commerce (mineral waters, etc.), and the subjects or citzens of any of the contracting States shall, in all the other States of the Union as regards patents, industrial designs or medals, trade-marks. and trade-names, enjoy the advantages that their respective laws now grant, or shall hereafter grant to their own subjects or citizens who shall have the same protection as the latter, and the same legal remedy against any intringement of their rights, provided they observe the formalities and conditions imposed on subjects or citizens by the internal legislation of each State.

Any person who has duly applied for a patent, industrial design or model, or trade-mark, in one of the contracting states, shall enjoy, as regards registration in the other states, and reserving the rights of third parties, a right of priority during the periods hereinafter stated, and subsequent registration in any of the other States of the Union before expiry of these periods shall not be invalidated through any acts accomplished in the interval, either for instance by another registration, by publication of the invention, or by the working of it by a third party, by the sale of copies of the design or model, or by use of the trade-mark. These terms of priority shall be six months for patents and three months for industrial designs and models and trade-marks. A month longer is allowed for countries beyond the sea. An international office shall be organized under the named of Bureau International de l'Union pour le Protection de la Propriete Industrielle (International Office of the Union for the Protection of Industrial Property), the expense of which shall be defrayed by the Governments of all the contracting States, it shall be placed under the authority of the Central Administration of the Swiss Confederation, and shall work under its supervision. Its functions shall be determined by agreement between the States of the Union; expense to be defrayed in following proportions, but not to exceed an average of 2,000 frames ($400) per State. France, Great Britain, and Italy, twenty-five shares each; Spain, twenty shares; Belgium, Brazil, Portugal, Switzerland, fifteen shares each; Holland. ten shares; Guatemala and Salvador, three shares each. French shall be the official language of the Union. A periodical paper shall be published by the International Bureau.

The United States has through the action of Congress rejected the above convention and so is not a party to it and has no benefits therefrom. Individuals or associations obtaining patents in England or any of the other countries which comprise the Union will have, however, the full and entire benefit of this convention.

RECENT LEGAL DECISIONS.

(Bradstreet's.)

An application was recently made to the Chancery Division of the High Court of Justice, (England) by a firm of iron and steel manufacturers, trading under the name of the Brades Company, for the registration of a trade-mark which had been used by them for more than fifty years. The trade-mark consisted of a device—an L enclosed in a circle—and the words "Brades & Co,, Warranted." The application was opposed by one Baron de Geer, who claimed the right to the exclusive use of the device. He was the owner of certain iron works in Sweden, and it appeared that ever since 1643 the iron produced at his works had been branded, as required by the Swedish law, with the device above described, and that the same had been registered in London in 1718. It had always been the practice of the owners of these works to sell the whole of their iron to a single English purchaser or firm of purchasers, and by agreements from time to time executed between the proprietors of the works and the purchasing firm for the time being, the name of such purchasing firm had been, since the year 1835, registered in Sweden, and used as a bye-stamp or addition to the original mark, and all the iron was stamped with the mark and the name of the purchasing firm before leaving Sweden. In 1878 the mark was registered by Baron de Geer, in England. It appeared that the iron was principally used in England for the manufacture of steel by a process uuder which the bars of iron, when converted into steel, retained their shape, and unless intentionally obliterated, any marks which might be stamped upon them; and for the purpose of making this steel, no other iron could be produced which was equally suitable. The applicants for registration proved that for fifty years, they and many other English firms had been in the habit of making inferior Swedish iron into steel, and of obliterating the marks upon such iron and replacing them with the device above described in combination with the name of their own firm or some other words. The opponent denied that this had ever come to his knowledge, or to that of his predecessors in business. The court in this case, in re Heaton's trade-mark, refused the application for registration, declaring that it would never give its sanction to a practice which, although it had been carried on for so many years, was in its inception, a gross fraud upon the owners of Baron de Geer's iron works.

The case of the Hoosac Tunnel Dock & Elevator Company vs. O'Brien et al., recently decided by the Supreme Judicial Court of Massachusetts, was an action against the defendant named, an attorney, and an arbitrator named Sprague, to recover damages for an alleged conspiracy to defraud the plaintiff. The defendants demurred to the declaration, and the court below sustained their demurrer. The judgment of the court below was reversed by the Supreme Court on appeal, that court overruling the demurrer of the defendant Sprague. The Supreme Court declared that the plaintiff could not maintain an action against Sprague as arbitrator for the reason that the immunity from actions which protects a judge or juror extends to arbitrators, but that he might maintain an action against the attorney for corrupt and unlawful acts of the latter if he were injured.

Money in a bank in New York, held to the credit of an institution in South Carolina, is not of such specific quality that it is liable to seizure by a United States Marshal in confiscation proceedings. So held in the case of the Phœnix Bank vs. Risley, decided recently by the Supreme Court of the United States and reported in the Albany *Law Journal*. This case arose upon an action by defendant in error, as assignee of part of the amount standing to the credit of the South Carolina institution, against the plaintiff for the recovery of the amount assigned him. The plaintiff in error set up that the money due that institution had been seized, condemned and paid over to a United States marshal by virtue of confiscation proceedings. The Supreme Court held that this was no defense.

The somewhat curious question was presented to the Supreme Court in the recent case of Norton vs. Knapp, as to what construction should be placed upon the words "Kiss my foot," written with the drawee's signature on the face of a bill presented for acceptance. The court declared the rule in such cases to be that where the drawee does anything with or to the bill, or writes thereon, anything which does not clearly negative an intention to accept, he can be charged as an acceptor; but it held that in the case before it, the words in question did not constitute an acceptance, it being the evident intention of the defendent, by the use of the contemptuous and vulgar words above stated, to give emphasis to his determination not to have anything to do with the bill or with the plaintiff.

Upon the breach of an executory contract whereby the injured party is prevented from performing on his part, and from realizing a profit which was contemplated by the terms of the contract as a result of the performance of it, a recovery of damages may be had equal to the profit which would have accrued directly from the performance of the contract. So held by the Supreme Court of Minnesota in the recently decided case of Fairchild vs. Rogers. The court also held in this case that a contract of a land-owner, whereby the latter was given the exclusive right to sell the land for the period of sixty days, was not in restraint of the power of alienation.

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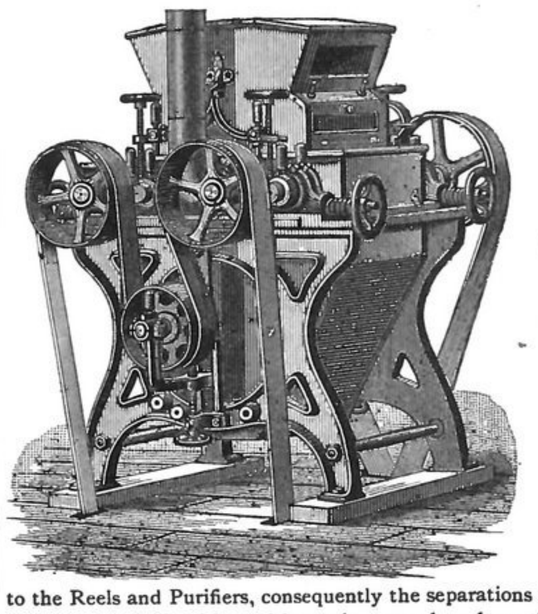

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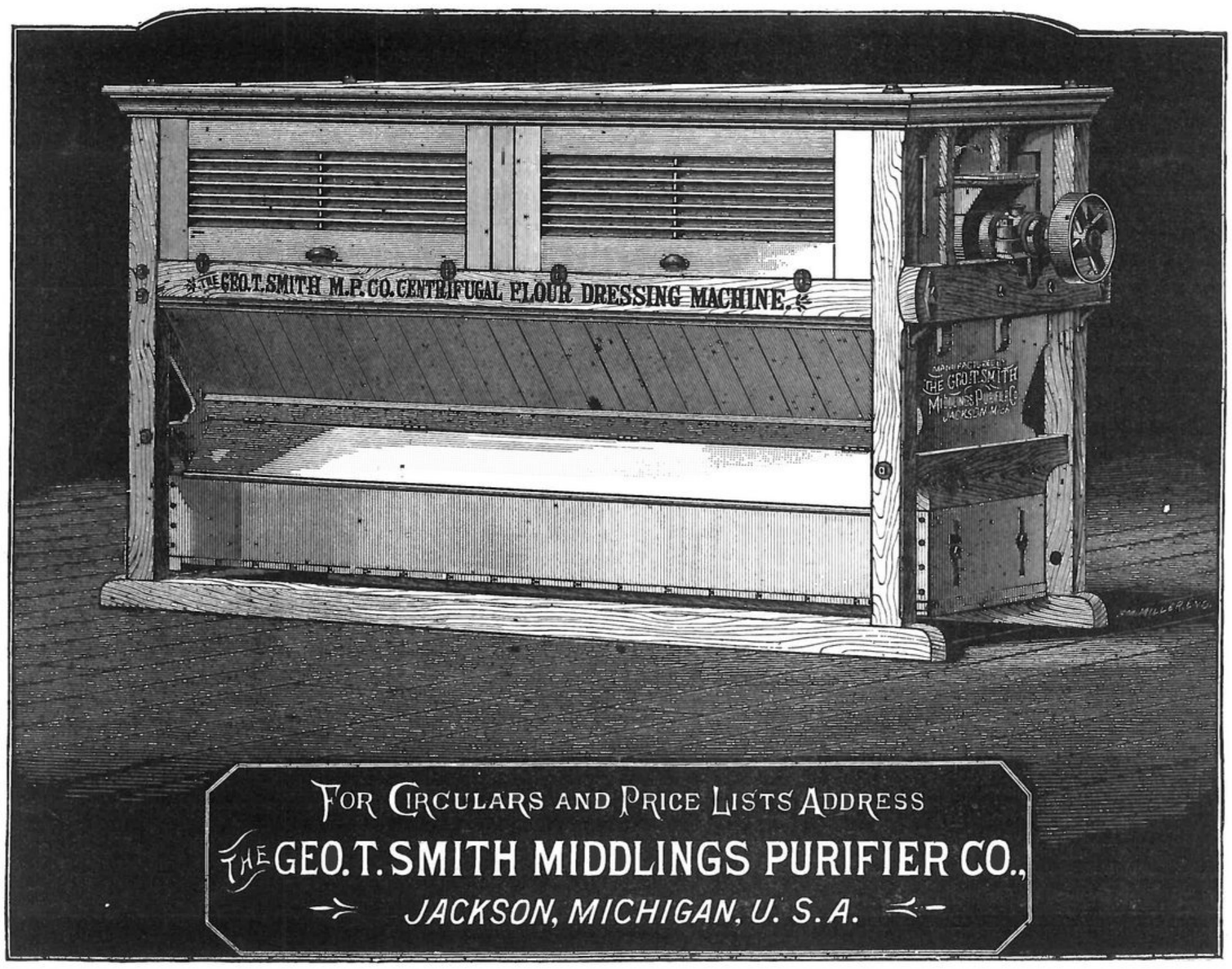


SCIENTIFIC AND MECHANICAL

PALM-NUT OIL AS A LUBRICANT.

THE wide spread and daily increase in the application of machinery to all the varied purposes of labor and industry renders the acquisition of a good and economical lubricating oil a matter of prime interest. Nearly all the fatty productions of nature—animal and vegetable—have been experimented upon with a view to this attainment, with greater or less degrees of success; it being found, however, that excellence in quality has generally been handicapped by corresponding increase in price.

To be a perfect lubricant, an oil must in the first place possess the power of reducing to a minimum the loss of useful labor occasioned by the friction of surfaces lubricated. In the second place it must be what is technically called "neutral;" that is, it must contain no free acids capable of attacking the metals of friction surfaces. The first property can be satisfactorily determined only by practical test; the second is easily established by simple chemical experiment. A solution of carbonate of soda agitated with the oil without producing any turbidity is sufficient proof of its neutral properties. The French official test is made by adding 50 grammes of carbonate of soda to 100 grammes of distilled water. Pour into a bottle equal parts of this solution and the oil to be examined, and reverse the bottle five or six times. If the oil is neutral it must separate in glistening globules, and give no precipitate; if, however, it coagulates into a lump, forms a kind of soap, and is thrown down, it is a sign that the oil contains free acid.

It has been found that palm-nut oil, or, as it is sometimes called, cocoanut oil and coquito oil, naturally possesses both these qualifications to a large extent. It neither gums nor wastes, and withstands removal by friction from surfaces to which it has been applied. It further possesses the advantage of being economical, being produced at the rate of 60 cents a gallon, even with the crude appliances at present in use among the natives for its manufacture. This nut is the fruit of a tree resembling the cocoanut, but not so high. The fruit hangs in large clusters like bananas, and varies in size from a pecan to a hen's egg. It grows in nearly all tropical countries, coming to great perfection along the coast of Mexico. The natives eat it both raw and baked, and use the oil for lighting, and every other use to which oil can be put. To extract the oil the nuts are first baked in an oven to expel the water. It is then ground in mills resembling old-fashioned coffee mills, and the pulp afterwards boiled, when the oil rises to the top and is skimmed off. With the proper machinery there is no doubt that this oil could be produced much more cheaply and of a purer quality, and we shall probably soon hear of some enterprising American firm taking the matter in hand.—*Ind. Record.*

THE ARTIFICIAL LIGHT OF THE FUTURE.

In his "Science Notes," in the current number of the *Gentleman's Magazine*, Prof. Mattieu Williams says: "My note on this subject last July was preceded by one on the researches of Professor Radziszewski. I now leaarn that he has actually separated the luminous matter of the *Pelagia noctiluca*, one of the multitude of species of marine animals that appear like little lumps of jelly, and produce the phosphorescence of the sea. He evaporated to dryness 180 specimens, and from the residue he dissolved out (by means of ether) a peculiar kind of fat, which, mixed with potassa, gives out, when shaken, phosphorescent flashes. This is exactly what happens to the living animal. When quiescent it is not luminous, but if shaken or rubbed, it flashes.

The practical importance which I attach to the study of the luminosity of these creatures is the fact that they supply light without heat. The costliness of all our present methods of artificial illumination is due to the fact that we waste a large, disproportionate amount of energy in producing heat as well as light. This wastefulness may be illustrated by supposing that we obtain a pound of the phosphorescent fat of the noctiluca, and divide it into two equal parts, making one-half into candles to burn in the ordinary manner, and using the other half to give out its light by cold phosphorescence. I am not able to give precise figures, but believe I am well within the truth in estimating that the candle would dissipate 95 per cent. of the potential energy of the fat in the form of heat, giving but 5 per cent of the amount of light that the other half pound would emit as cool phosphorescence. Let us, then, hope that Professor Radziszewski will continue his researches, and discover the whole secret of both the analysis and synthesis of this fat; and that of the glow-worms, the fire-flies, etc. Now that we can supply the confectioner with flavors of almonds, raspberries, jargonelle pears, nectarines, etc., and imitate the perfumes and the richest colors of nature's sweetest and brightest flowers, all by the chemical manipulation of coal tar, we need not despair of solving the chemical problem of transforming mutton suet, or palm oil, or vaseline into glow-worm or noctiluca fat, to be used for illuminating purposes."

TESTING FLOUR.

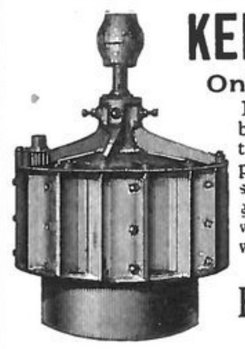
The nutritive value of flour admittedly depends on the gluten, starch, albumen and phosphate which it contains, says the New York *Produce Exchange Reporter*. The determination of the proportion in which these elements exist can of course only be determined by chemical analysis, but for all practical purposes, the amount and character of the gluten serves as a test. There are various modes of reaching the estimate. An ordinary method is to place a weighed quantity of flour made into dough in a fine sieve or gauze bag, and place it in a stream of clear water. As soon as it ceases to impart a milky color the starch is washed out, leaving a gray mass of fibrous structure, adhesive, ductile and elastic. The same result follows from placing flour paste in a sieve and plunging it repeatedly into cold water, the paste in the meanwhile being constantly kneaded. An instrument extensively used in France to determine the quality of flour known as the aleurometer, consists of a copper tube holding an ounce of fresh gluten, screwed into a copper cylinder open below, and which is placed over an oil bath heated to 420° F. The gluten is expanded by the heat, and the higher it rises in the tube the better the quality of the wheat. Good flour will furnish a gluten which augments to four or five times its original bulk, rising in the tube to above the 40th degree, but inferior flour gives a gluten that does not swell, becomes viscous and nearly fluid, adhering to the sides of the tube, and giving off occasionally a disagreeable odor, while that of good flour merely suggests the smell of hot bread. Another method to determine the richness of flour in gluten is founded on the property of dilute acetic acid of dissolving out the gluten and albuminous matter in flour without dissolving the other constituents, the richness being indicated comparatively by the density of the solution determined by a hydrometer. The adoption of this plan enables a baker to determine with great accuracy the number of loaves of a given weight that can be made out of a sack of flour.

* * Why boiler owners should have their property inspected and guaranteed by competent insurers is forcibly shown in the following extract from the Boston *Bulletin* on the bursting force of a boiler. Few people conceive how powerful is the force imprisoned in the interior of a steam boiler when in active operation. The steam gauge shows a pressure of perhaps 100 lbs. per square inch, and the uninitiated spectator who works or walks carelessly beside the apparatus, may imagine that 100 pounds represents the force with which its fragments would be propelled in case of an explosion. But the whole force of the live steam in a boiler is equivalent to the area of the entire internal surface of the boiler multiplied by the pressure per square inch. Suppose, for example, the internal length of the boiler is 240 inches and its diameter 66 inches, and that the steam gauge shows a pressure of 100 pounds. A mathematical calculation shows that the total internal area of the boiler is 36,605 square inches, and hence the force of the imprisoned agent is not 100 pounds, but 36,605x100 pounds, or 3,660,500 pounds. Think of that the next time you hear of the employment of an incompetent engineer to handle a boiler whose explosion is liable to send half a dozen persons into eternity! Neither does the 100 pounds pressure shown by the steam gauge indicate even the strain to which a single square inch of the boiler is subjected, or otherwise boiler-builders would not require as they do now that the iron or steel which they use must have a tensile strength of 50,000 to 60,000 lbs. per square inch.

* * The great number of towns and cities springing up in the new West and Northwest make the subject of fire protection an important one to these fruitful sections, says the *Investigator*. It would be a valuable thing for these future Chicagos and St. Pauls if they would begin their corporate existence in each case with adequate provisions for fire protection, and then keep it up in a manner befitting all stages of their growth. In the early history of these new towns the buildings are made chiefly of wood, and are lightly constructed at that, and are thus peculiarly vulnerable to the ravages of the flames. It is no uncommon experience for such places to lose their most important block by a single fire, all because there was no appliance at hand to check the flames. The aggregation of buildings and people must be very small indeed, which can not afford, a small hand, chemical or horse power engine, and the appurtenances thereof. Without attempting any accurate estimate of the cost of the equipment of a fire department, let us suppose that a town of 1,000 inhabitants pays $2,000 for apparatus. At the average rate for which money can be borrowed, the town must pay $150 as interest on the investment, or ten cents per capita a year for the privilege of feeling secure in person and property from outbreaks of fire. Not an extravagant investment certainly, and it need not be more than proportionately greater as the town progresses toward cityhood. The town that learns in advance the lessons of prudence only anticipates the more severe teachings of that stern schoolmaster—experience.

* * People seem to be amazingly reckless about handling electric light wires. Some weeks since a boy was killed at Bridgeport, Conn., while playing with one of these wires. Later a number of people in the same city were heavily shocked by touching "for fun" an iron pipe connecting with the wires. A Boston wire fell into the street and people fooled with it in the same ignorant way, A reporter wouldn't believe the stories of injuries told him, touched it and got knocked out of his folly. When the police were summoned they gravely set to work to lift the terror over a fence with sticks. They succeeded, but a policeman was tumbled over in the operation, Then they left the wire touching a wooden fence while they went to notify the owner. "A nigger on the safety valve" of a Western steamer is the height of prudence beside such conduct as this.

* * Philadelphia is about to try the experiment of moving horse-cars by the cable system.



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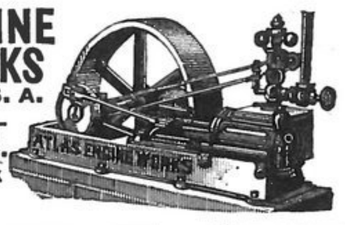

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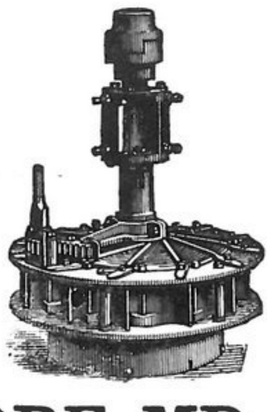

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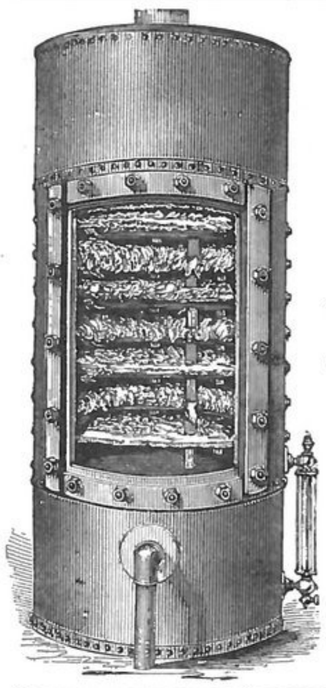

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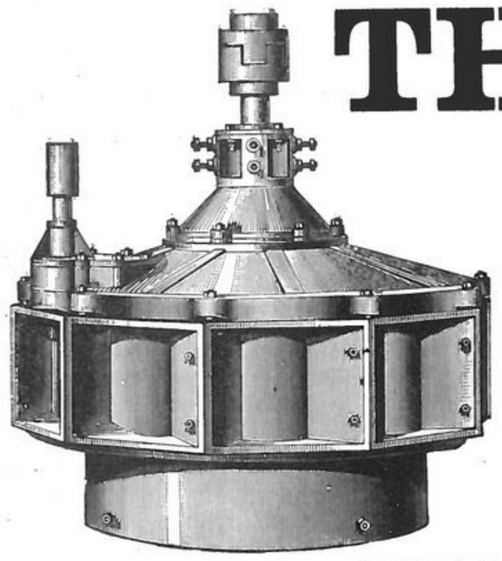

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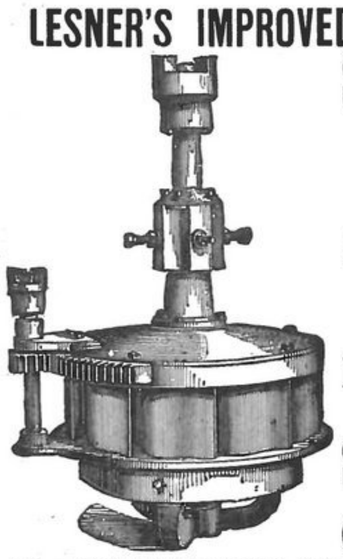

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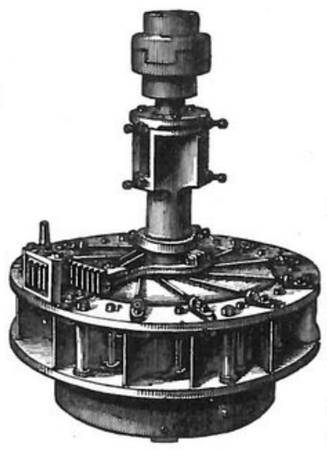

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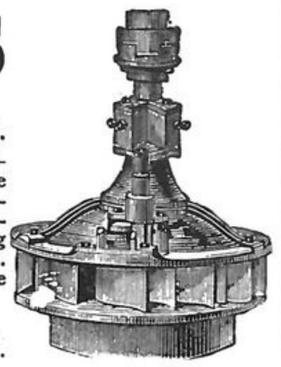

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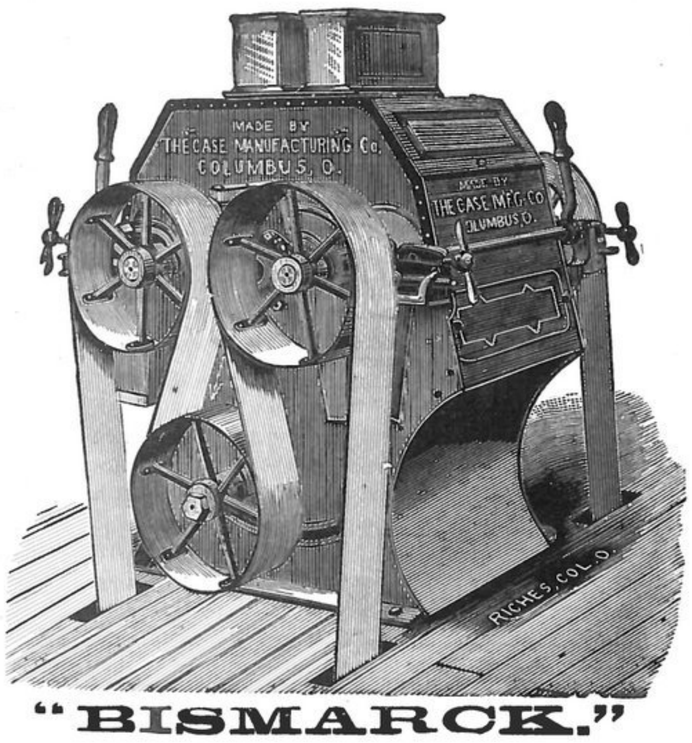

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CASE MANUFACTURING CO.

COLUMBUS OHIO.

Notes from the Mills.

The rye harvest has commenced in Southern Dakota.

Hackl & Sevill, Lodi, Wis., have bought a Gray noiseless belt roller mill.

W. E. Woodyear, Baltimore, Md., has bought a Gray noiseless belt roller mill.

W. A. Gaines & Co., Frankfort, Ky., have bought four pair Allis rolls in Gray's noiseless belt frames.

Keystone Iron Works Co., Kansas City, Mo., has ordered a Gray noiseless belt roller mill from E. P. Allis & Co.

A Gray noiseless belt roller mill has been furnished by E. P. Allis & Co., to J. A. Humphrey & Son, Charleston, W. Va.

A couple of gentlemen from Hudson, Wis., are preparing to construct a 150-barrel flour mill at Royalton, Morrison county, Minn.

H. S. Carpenter & Co., grain merchants at Joliet, Ill., have confessed judgment to the First National Bank of Joliet for $7,381.

P. N. Crill & Co., Richland, Dakota, have given an order to The Case Mfg. Co., Columbus, O., for breaks, rolls, scalpers and centrifugals.

E. Cutler, Ridgeway, Ont., has bought a No. 2 four-break reduction machine, a Grays noiseless belt roller mill and complete outfit from E. P. Allis & Co.

The Bradford Mill Co., Cincinnati, O., has placed its order for six pair Allis rolls in Gray's noiseless belt frames for Wilson & Beardsley, Huntington, W. Va.

Henry Kritzer, Newaygo, Mich., has ordered eight pairs Allis rolls in Gray's noiseless belt frames, and other machinery necessary to fit his mill up in good shape.

Richter & Co., Williamstown, W. Va., have placed an order with The Case Mfg. Co., Columbus, O., for two pair rolls with patent automatic feed and other machinery.

The Case Mfg. Co., Columbus, O., have an order from Geo. S. Rickart, North Columbus, O., for four pairs of rolls with patent automatic feed, and other machinery.

The Ohio State Board of Agriculture estimates the yield of wheat in the state at 35,487,330 bushels of excellent quality, against 25,500,000 bushels badly shrunken last year.

The Indians are harvesting the grasshoppers which have appeared in great numbers at Lincoln, Roseville, and vicinity, in California, and are drying them for winter food.

The Case Mfg. Co., Columbus, O., have an order from E. W. Gillis, Morencie, Mich., for one "Little Giant" break machine and scalper combined, making three separations.

Thos. Sharp & Co., Salem, O., have ordered from The Case Mfg. Co., Columbus, O., two pair rolls with automatic feed, to be shipped to Curry & Topping, Pomona, Kan.

At West Winchester, Ont., July 12, Beach's flour mills, Alexander's grocery, and several dwellings were burned by the explosion of a barrel of coal oil. Loss $200,000.

An order from Hammond & Benedict, Le Grand, Iowa, has been received by The Case Mfg. Co., Columbus, O., for two patent automatic feeds for their Downton rolls.

Winter wheat in western New York is being harvested. The quality and yield are good. All other crops are abundant except apples and grass, which are about two thirds of a crop.

Topeka Mill & Elevator Co., Topeka, Kan., have bought six pair Allis rolls in Gray's noiseless belt frames, and the necessary bolts and machinery for a complete corn meal mill.

The Case Mfg. Co., Columbus, O., have received an order from J. A. Parker & Co., Terre Haute, Ind., for one three-roll break machine to be shipped to J. S. Reid & Son, Sullivan, Ind.

Belken & Murray, Frederickstown, Mo., have awarded the contract for a line of breaks, rolls, purifiers, centrifugals, scalpers, etc., for a gradual reduction mill on the "Case" system to The Case Mfg. Co., Columbus, O.

The Richmond City Mill Works, Richmond, Ind., has ordered twelve pair Allis rolls in Gray's noiseless belt frames for J. W. Zarig, Shelbyville, Ky., and eight pair Allis rolls in Gray's noiseless belt frames, for a job they have at Hiawatha, Kan.

At Mono Mills, Can., July 18, J. F. McLaughlin's flouring mills were burned. As there was no fire about the mill at the time, it is supposed that some of the machinery must have become heated.

D. L. Wing has accepted the offer of the new Planet Milling Company, of Litchfield, Ill., to manage his old mill, and will take charge some time this week, when the mill will probably be started. The company has not as yet received its incorporation papers.

At Thorntown, Ind., July 9, the large flouring mill of Kirk & Brrker was burned. The supposed cause of the fire was a hot journal in the machinery of the third story. The estimated loss is $7,000; insurance, $3,000, divided equally in the German-American, Continental and Western companies.

According to St. Louis dealers in bags and bagging, a great many jute sacks are being taken for export, which would seem to indicate an increased foreign demand for low grade flours. Almost all the millers are sending forward more or less flour, but brokers are making no attempt to do an export trade for the present. A great deal of flour is going to Ireland.

At Cobleskill, N, Y., July 18, fire was discovered in Frank Rose's steam grist mill, near the depot, and in rear of the American Hotel. The fire is supposed to have caught from a spark thro vn from a passing locomotive. The flames rapidly spread to the coal sheds adjoining, which, together with the mill, were totally destroyed. The loss is estimated at $5,000; insurance, small,

At Wegee, near Belaire, O., July 16, a large flour mill caught fire and was entirely destroyed. The building was a large frame one, and the roof and sides were very dry and burned like a tinder box. The occurrence of two fires not far apart as to time or distance gives rise to a suspicion that they may not be entirely accidental, though in the present dry condition of things a very small spark will cause a fire.

The building of the new elevators has already begun by the Minnesota Farmer's Union Elevator Company. At Sabin the structure is rapidly rising. Lumber is unloaded on the site of the new house at Glyndon, south of the Northern Pacific track, opposite Bangs & Co.'s warehouse. Material is on the ground or in transit for the elevators at Barnesville, Kragness, Carman, Angus, Argyle and Stephen. Each house is to be of 30,000 bushels capacity.

The "Kent Mills," in Chatham, Ont., were burned some months ago. They have been rebuilt, and in their place stands a five story brick structure 60 by 50 feet, fitted with fourteen double roller mills, centrifugal reels, purifiers, bran dusters, Eureka flour packers, etc., etc. The motive power is supplied by one of Inglis & Hunter's Corliss engines. The *Planet* says that the mill has 400 feet shafting, 5,000 feet belting, has a capacity of 350 barrels flour per day, and has cost $60,000.

The harvest prospects in the Pacific Northwest are noted by the *Northwest News*, of Portland, Oregon, as follows: It is safe to say that the crop this fall will be one of the largest ever harvested in this state. With a wheat crop of 18,000,000 bushels, a wool clip of 10,000,000 pounds, a large hop yield and an immense fruit crop, the Pacific Northwest will rapidly overcome the effects of the short crop of last year. This is essentially an agricultural community, and a good crop of wheat, fruit, wool and hops means good times.

The Secretary of the Kansas State Board of Agriculture estimates the aggregate wheat crop at 49,115,000 bushels. The condition of the corn crop is not so good as last year—estimated at 90 per cent. Rye shows a decrease of 7 per cent. in area, and the crop is 10 per cent. better than last year. Oats are not so uniformly good as last year—the condition is about 10 per cent. less and the area is about 45 per cent. larger. Flax is in better condition than last year, and the area about 14 per cent. The acreage is about 133,000, and the yield is estimated at 11 bushels.

Mr. Briedenthal, proprietor of a mill at Vincennes, Ind., was in St. Louis last Friday trying to buy some wheat, but was considerably disappointed to find that No. 3 and No. 4 had advanced so much within the past week as to prevent his buying any. The crop around Vincennes, according to Mr. Briedenthal, is in fairly good condition, but is not likely to come into the market at present prices, as farmers are holding back and stacking their wheat. Mr. Briedenthal says that demand for flour is increasing in the south, and a few days since he received an order for twelve cars of flour to go to Kentucky—an unusually large amount. There is also a demand from Charleston, Savannah and other Southern points. Local demand, he says, is better than it has been in some time before.

The crop news, collected by the *Commercial Bulletin* up to the 17th inst., are in the main of the same favorable character with those which have been published before. The wheat harvest has been about completed in several states, and the crop has been got in in splendid condition. Iowa not only reports an increased acreage, but the condition of the grain as the best on record. In Missouri, many of the counties report the yield of wheat as the best in several years. Minnesota assures us that "everything looks fine;" while in Central Illinois, from which we have heretofore had rather dubious reports, the latest statements warrant the conclusion that there will be a six per cent. larger yield than was predicted by the State Bureau last month. Wisconsin, Indiana and Minnesota have no news to send that is not good news; and even Arkansas sends word that "this year is likely to be the most bountiful one ever known in this state."

Mr. Andrew Wright, foreman of the North Star oatmeal mill at Cedar Rapids, Iowa, says: "Our produce all goes to Liverpool and Glasgow, the one hundred and eighty thousand pounds sent out to-day going to the latter point. We close down to-night for a rest of two weeks, during which time the machinery will be overhauled and preparations made for the new crop. We draw our supply of oats principally from along the line of the Iowa Central, and from points on the Burlington, Cedar Rapids & Northern, Sac City, Cedar Falls and Sioux City being large contributing points. We also gather a great deal in Nebraska. We have used as high as seven thousand bushels per day, though the average rate is a little over six thousand. Yes it does seem odd that we should ship largely to Scotland, from which the best oatmeal is supposed to come, but you see they mix it half and half with the native article and sell it at home and abroad as Scotch."

Cooper's grist mill at Belleville, Ont., was destroyed by fire on July 13. The mill was an old wooden one, two and one-half stories high, built when timber was plenty and millwrights thorough in their work, and was none the worse for its age. From time to time new machinery had been added, and the mill was admitted to be one of the best in that section. Mr. Cooper had, during the past month, been making extensive repairs, and his stock of grain was not as large as it would have been had he been running as usual. There were about 400 bushels of grain in the mill, about half of which was ground. Nearly one-fourth of this was saved and the rest was lost or damaged. The water wheels and millstones were the only machinery of any value that were not destroyed. The mill was insured for $1,500 and Mr. Cooper estimates his loss at $8,000. Mr. Cooper left the mill at about 8:30 on the previous evening, and before leaving made a careful examination of the premises to see that all was right. The general verdict is that this is another villainous piece of incendiarism. Mr. Cooper intends re-building his mill at once.

The crops, chiefly of corn, between Chicago and the crossing of the Mississippi at Burlington, are magnificent. A correspondent of the Chicago *Tribune* writes: "The whole distance of 206 miles I did not see one bad field of wheat, oats, corn or grass. The growth of everything was prolific to a remarkable degree. It was corn on the right of one, corn on the left, corn in front, in the rear, and all round—a sea of corn to the islands of wheat and oats scattered through it. No observant person can traverse Illinois at this season of her cereal glory without confessing that she is really and in truth the Garden State of the Union. The wet marshes and sloughs are rapidly disappearing through the agency of tile drainage, and the fall, worthless wire-grass is giving place to magnificent yields of maize, heavy cuttings of nutritious hay and abundant pasturage. What was the worst land has become the most productive and valuable by means of underdrainage. It is estimated that a million of acres of slough lands have already been reclaimed, and nearly all during the last half dozen years, at a gross cost in money and labor of perhaps $25,000,000. But before being drained these lands were not worth $10 per acre for any purpose. They could not be bought now for ten times their former value."

Negotiations have been in progress for some time past for the sale of the Atlantic Mill property, situated on Main street, between Poplar and Plum streets, St. Louis, and it is probable that by this time the sale will have been consummated, the purchaser being Mr. Eisenmayer, of Eisenmayer & Co., millers at Trenton, Ill. The property was sold about three months ago, under deed of trust, issued to the holders of $100,000 of bonds, which were a first mortgage on the property, and was bought in by a syndicate of the bondholders, including the German Savings Institution, Fusz & Backer, Gerard B. Allen, John Wahl and others. Since then they been making every effort to sell, but owing to the dullness of the milling trade have been unable to do so. They made several offers to the former proprietor, George Bain, which were refused, and they have also been negotiating with several local millers. The mill is entirely new, having been burnt out and rebuilt twice, the last time being fitted out with the latest improved machinery on the roller system. Its capacity is about 800 barrels per day. Should the sale be consummated, it is probable that Mr. Eisenmayer will start the mill immediately. It is generally supposed that Mr. Bain will be interested in the new company, if one is formed, and that he will manage the affairs.

The fight between the Chicago Board of Trade and local bucket shops, of which little has been heard of late, was renewed last Saturday with increased vigor, and resulted in shutting-off the quotations furnished the Phœnix grain and stock exchanges of which Morris Martin is the manager. The Phœnix has been closely watched by the Directors for some time, and they finally became convinced that there was crooked work going on, and ordered the wires running to that institution cut, which was done before the opening of the board, and the bucket shop failed to receive quotations over the regular wire. Martin has been on the watch for just such a sudden turn in affairs as occurred and had a secret wire run from the top of his building, which is in the rear of the Board of Trade, down through the southeast corner of his room, and hid it in a wash-stand, but did not have it connected. The work was done by a "wild wire stringer," who was formerly in the employ of the Western Union Telegraph Company, but lately has been engaged by the bucket-shop managers in their efforts to tap the wires used in sending out quotations from the board. They have done some fine work—hiding their wires in gas-pipes, and stringing them at night for fear of detection. Before the opening of the board the wire lately in use was tested by the bucket-shop men, who found it cut. Their wire man was immediately sent for, and the secret wire under the washstand connected, not, however, until the board had been opened for five minutes. They had their trouble for nothing. The new wire only worked ten minutes, as it was cut by the lineman of the Western Union, who were sent on top of the building to investigate, and found a number of wild wires, which were immediately cut, and the frequenters of the alley were surprised to see a number of wires come tumbling down on them. The bucket-shop managers were put in a bad condition by the cutting of the wires, and little business was transacted by them, especially by the Phœnix, but their customers agreed to settle by the closing prices at the end of the day. The cutting of the wire to the latter not only deprived them of the quotations but also a large bucket-shop in St. Louis, which has been furnished quotations by Morris Martin in a round-about way over a special wire lately leased from the Western Union at $5,000 per year, with the hope of receiving favors from that company, which, according to its contract with the Board of Trade, it was unable to grant. Martin has heretofore baffled the efforts of the Directors of the Board of Trade and the Telegraph companies to detect his secret wires, and was beginning to feel secure in his position. Investigation will be carried on next week and further developments are looked for.

The Mill Furnishing Trade.

MESSRS. G. S. CRANSON & SON, who manufacture buckwheat shuckers at Silver Creek, have heretofore had their machines built by Howes & Ewell, on contract. They recently bought land on Mechanic street, Silver Creek, and will soon begin to build a shop. This will add another factory to that thriving village. Mr. C. H. Sterling will be foreman in the new shop.

MESSRS. HOWES & EWELL, of Silver Creek, N. Y., have just gotten out a very tasty descriptive catalogue of their well-known "Eureka" whea cleaning machinery and other specialties. Copies of which may be had by dropping them a postal card, and every miller in the country ought to have a copy of it. We admire its arrangement and the full explanation of every machine is a feature which will commend itself to the millers.

THE CASE MFG. CO., in sending their notice to owners and users of purifiers, which appeared in our last issue, took occasion to inform us that the fine promise of the wheat harvest has already made itself felt in their business by an influx of many orders. They state they are running full blast, and that their business was never in a more healthy condition, barring the usual tardiness in collections. Millers that would have done nothing this year, now that the harvest promises so well, are in a big hurry to get in new machinery ready for the new wheat.

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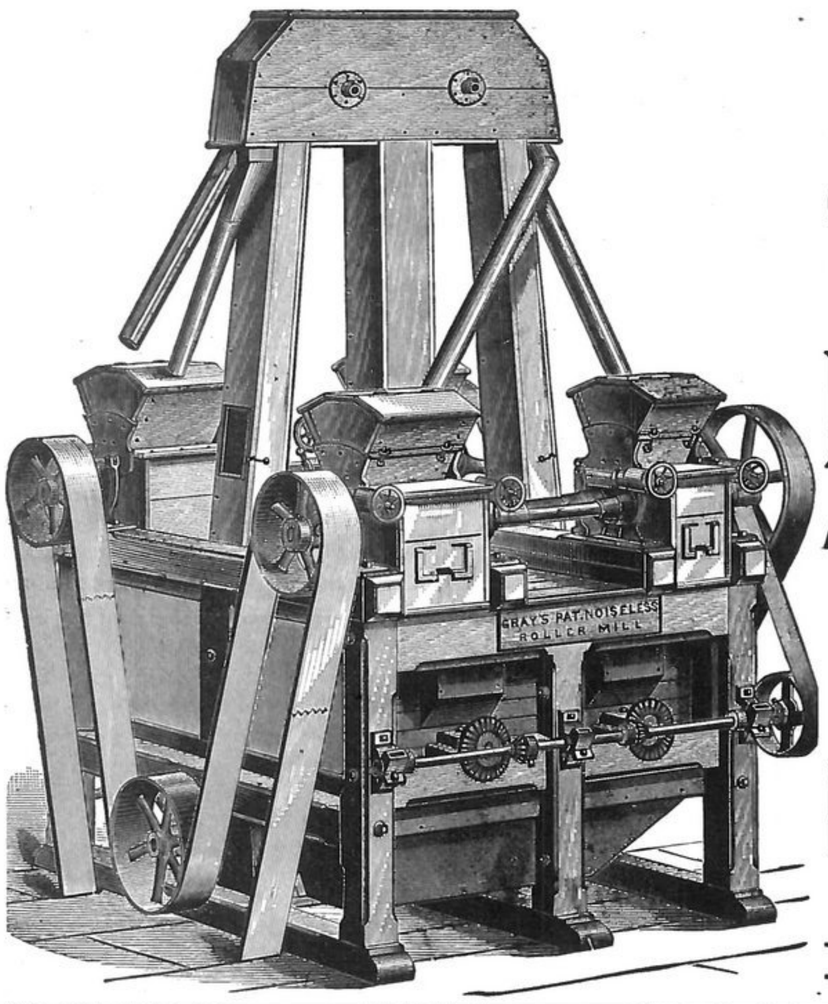

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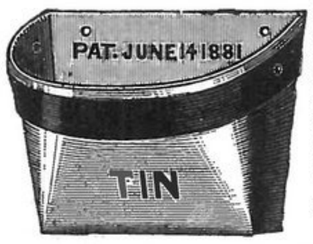

is gaining favor every day. Over 13,000 sold in one day in three different States. My capacity in my new shops is 6,000 per week. I carry 30,000 cups in stock and can take care of any size order.
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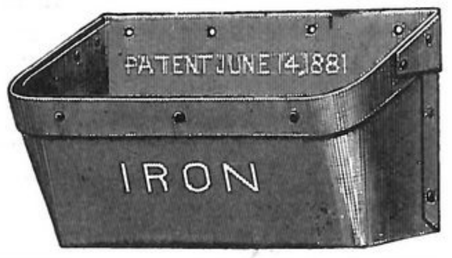

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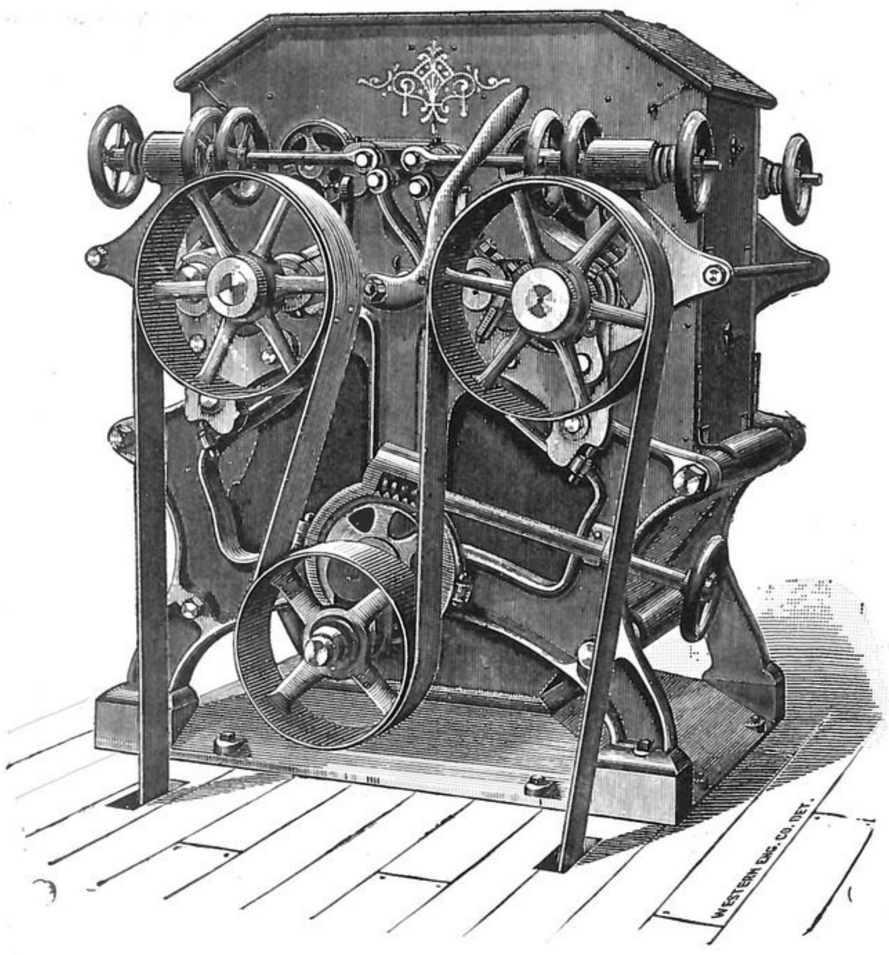

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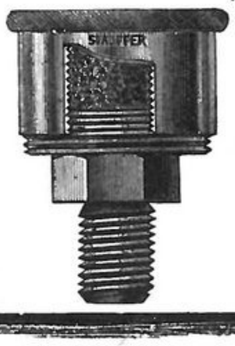

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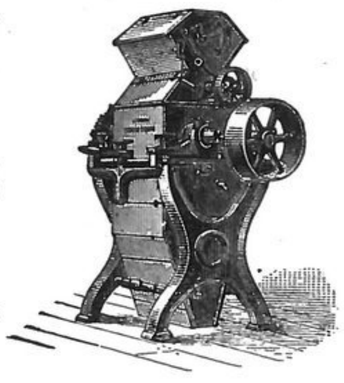

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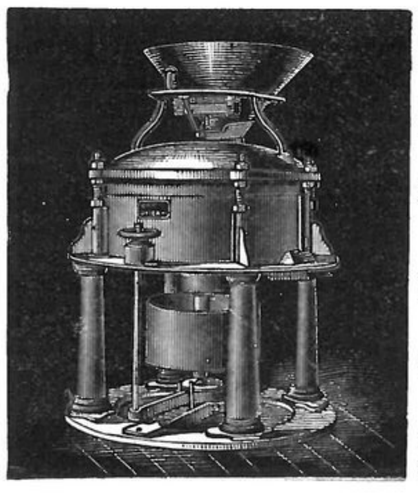

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From Foreign Lands

DUST COLLECTING IN CORN MILLS.

THE following paper, read by Mr. Ralph Howarth at the recent convention of the British and Irish millers at Stockton and reported by the *Millers' Gazette*, can be looked upon as a fair exposition of that branch of the milling industry, which is covered by its title, in Great Britain:

The Greatest Reformer that ever lived made use of the following remarkable sentence: "Gather up the fragments that remain, that nothing be lost." This paper is intended to emphasize and inculcate this injunction in the minds of all millers, so far as the question of dust collecting is concerned. Indeed, this grand principle of rigid economy lies at the very foundation of all successful trade.

One of the most striking things in connection with this subject of "dust collecting" is the fact that to the minds of very many millers it should seem impossible that their trade could be conducted without being associated with that dirty, dangerous and wasteful expedient "the stive room," and its equally ugly and unsightly adjuncts, dirty ventilators, and filthy mill tops, and consequently an unnecessary and unknown amount of waste, producing in many cases a positive nuisance to the neighborhood.

I have also been somewhat surprised that, during the great revolution that is now taking place, some of the men in whom the millers have justly placed confidence, should apparently be willing to perpetuate one of the worst features of the trade, and certainly the most dangerous, rather than be at the trouble to investigate a means for its extinction.

As an illustration of the amount of waste which the use of the stive room entails, I may mention the case of one company's mill, where the expense per week was £2 for wages alone, in cleaning the mill tops; and when we add to this the amount of good food thus utterly thrown to waste, which simply means "wealth in the wrong place," the loss in this particular instance, including damage to roof, troughing, spouts, and mill walls, must at the least have amounted to something considerably over £1,000 per year, and this mill was justly considered to be one of the best managed mills in country. Calculated on this estimate and on the output of this mill, the loss from this source alone, in the British Isles, must amount to a very serious sum, not to mention the loss on the Continent and in America; and this loss has been going on more or less ever since the first introduction of fans in corn mills. This loss is, no doubt, one source of the very considerable loss hitherto attributed entirely to evaporation.

Another very considerable source of loss, not only to millers, but to the various fire insurance offices, has been demonstrated to result almost entirely from the stive room and trunks connected therewith in producing both fire and explosions, both in this country and abroad; therefore the abolition of the stive room, and the substitution of some effectual dust collector, fixed close to where the dust is made, ought to remove the strain and difficulty that at present surround the question of insurance. Looking also at this question from a humane point of view, it always appears to my mind that to clean out some of the modern stive rooms, is a piece of work utterly unfit for any human being to perform, and which, most certainly, must be very injurious to human life.

In simple justice to the millers it is, however, only fair to say that until it was proved to a certainty that dust can be collected and mechanically treated afterwards without this waste, nuisance, danger, and injury to health, they really had no option in this matter.

Perhaps there is no difficulty in corn milling that has received more attention than the question of dust collecting, and at which there has been so many and various attempts at a remedy. A brief reference to some of these may not be out of place in a paper on this subject.

Several of the earlier attempts were by a mechanism fixed in the casing over the stones. One great objection to these machines was their great cost; another, that after collecting the dust, they delivered it back again into the wheat meal, and from some qualities of wheat it is well known that stive dust is almost as objectionable as mill sweepings. The next attempt that I know of, failed for want of sufficient filtering material, and for want of efficient means for keeping the filtering material porous. The next attempt to collect dust was by magnetism; this was a very short-lived machine. A partially successful mode has been tried in some mills which was entirely dependent on the spasmodic assistance of hand shaking; the fatal objection to that machine was that however little opposition it presented to the fan at one time, at another it almost choked it altogether; this caused the middlings to be cleaned very irregularly, and this objection applies to all dust collectors not cleaned by automatic mechanism, and at short and regular periods. Another form of dust collector, while displaying great ingenuity in mechanism, is at the same time so complicated as to render it utterly impracticable for real work. Another machine does stop the dust, but instead of collecting it at once into a receptacle, it calls in the aid of an extra fan to produce a reverse current of air, which blows a portion of the dust into a receptacle, and the remainder back again into the current of dusty air.

These various machines and numerous others, may all be said to be partial or complete failures, and these numerous failures have so shaken the faith of millers as almost to render them faithless in the practicability of dust collecting; indeed, I noticed an article in a recent number of the *Miller*, by Robert Young, of Glasgow, who had also made an unsuccessful attempt at dust collecting, which boldly asserted that dust collecting remained still a problem. In contradiction of this statement I assert that successful dust collecting has been accomplished, and that machines have been doing this useful work in some of the best mills in England, for a period of nearly three years, and doing it to the entire satisfaction of some of the best and most practical millers.

It is now about four years since I personally began to scrutinize the amount of waste we were making at our mills, and the result of that scrutiny somewhat astonished me; I could only realize it all when I reflected that it was being carried away by every gust of wind and every shower of rain, as well as some of it being left to rot and putrify on the mill tops. However, I at once determined by some means to reduce this waste, and in my various attempts to do this, I unconsciously travelled over the very same ground that most all other makers of machines for this purpose had done; and finally from practical experience I came to the conclusion that dust collecting could only be successfully accomplished by a combination of at least two principles, and these were the gradual turning completely inside out of flannel pockets (just in the same manner as any person would naturally do who wished to clean either a sack or a pocket), which operation should double them at every separate mesh in the material, so as to leave the dust quite loose on the inside surface, and while in this loose state the pocket should be vigorously shaken, and while in the act of being so doubled and shaken, they should have a vacuum formed on the dusty side so as to cause a suction through the flannel at the moment they were being shaken; this combined action causing them to be perfectly cleaned of dust, and the material quite open and ready for further use. Another feature necessary to a successful dust collector is, that it should be arranged and constructed in comparatively small sections, so that only a small portion of the machine should be stopped at any one time for the purpose of cleaning, and this arrangement enables the miller to keep the stive from the rolls, stones, and purifiers entirely separate in their delivery, even when they are all blown into one machine. It is further necessary that the machine should be adaptable to any size of room or mill, either in width, height, or length, so that a mill of any size could be supplied efficiently by one machine or by several small ones as most convenient, but be so arranged that it should in any form occupy the least possible floor space, and should at the same time in all cases allow ample filtering surface, and be kept continually clean, so that machine should have more than sufficient to prevent the least back pressure. As an illustration of the adaptability of a machine constructed on this principle, machines have been made varying in sizes from six pockets up to 120 pockets, (this latter machine having a collecting capacity of about 5 sacks an hour), including numerous intermediate sizes constructed either in a single row of pockets or a double row, to suit the room in which they were to be placed.

Without recommending any special form of machine, my advice to millers on this subject can be summed up in a few words: examine all things, prove all things, and secure that which is good; but above all decide at once and forever, to banish that unnecessary abomination "the stive room" from connection with what ought to be the cleanest and most particular of trades.

NOTES.

The Mexican Central Railway company is about to reduce freight tariffs, especially on the fruit shipped to the United States.

In several places of the state of Vera Cruz locusts have destroyed every vestige of the standing corn, and the people fear starvation.

If advantageous terms are granted Cuban imports to America, England requests that the same terms be applied to her colonial imports to America.

The proposition of the English Postmaster-General to teach telegraphy to the blind can scarcely be considered a visionary scheme. He appears to be really in earnest, and intends shortly to send out full instructions for teaching, to the various blind institution in England.

The majority of the English newspapers give but little encouragement to Mr. Whitely and Gen. Norton, who are visiting London in the interest of the proposed American exhibition, and the general opinion seems to be that an exhibition confined wholly to the products of the United States will be a failure.

Swiss railway companies have hit upon a very efficient method of attracting attention to their trains by covering a portion of their carriages with a phosphorescent application which renders them visible in the darkest nights. This might prove a valuable suggestion in this country, where trains run at all hours through unprotected streets.

The "Germania" Bakers' Association, which was founded in Berlin in 1874, and which, from a very humble beginning, has now nineteen district branches, and numbers not less than 15-000 members in 600 different towns and villages of Germany, will hold, on August 17 to 24 an Exhibition of Baking and Confectionary, in the Winter Garden of the Central Hotel, Berlin.

Mr. William Gardner, of Gloucester, England, has booked an order for a roller plant in the county of Durham, in which the Odell 8-roller mill will be used for the breaks, and the middlings rolls, scalpers, and centrifugals will be of his own make. He has also received an order for three of his new centrifugals, and two of his new middlings graders for a large mill in Hereford; this will be the second mill in Hereford using his centrifugals and graders. He has also just sent one of his centrifugals to a large mill in Sheffield, and has orders for these machines from other parts of the country.

The new models of the carriage and pontoons of the Tehuantepec Ship Railway have started for London. Nearly all the capital for the enterprise is being subscribed in that city. Chief Engineer Corthell says 100 men are at work and that the first half mile of track has been completed. This, with the river course, which admits three of the largest ships abreast, completes twenty-five and a half miles of the Tehuantepec route. The new pontoon system of raising vessels from the water upon the railway carriage is to be substituted for the hydraulic system first contemplated. It was conceived by London engineers and adopted by Eads, and will raise a ship out of water and upon the carriage in twenty minutes.

It is proposed to have a universal exhibition of railroad material as St. Etienne, in France next year. St. Etienne is a city of nearly 100,000 inhabitants, in Southeastern France, some thirty miles southwest of Lyons. Why that place should be selected is not easy to see, unless exhibits of rolling stock are expected from sothern Europe. It is much nearer Switzerland, Austria, Italy and Spain than Pairs, but these are not the countries that would be likely to have most show at such an exhibition. The nearest important port is Marseilles, about 150 miles distant. It is proposed to have tracks in the form of an immense figure 8, in which the different systems of iron substructure, joints, chairs, rails, switches, signals, etc., shall be employed and tested.

According to *Le Journal de la Meuutrie*, the fine floating grain elevator which the enterprise of a company recently gave to Bordeaux, will shortly leave that port for Rouen, where, it is said, the machine is more likely to be appreciated than in the great port of the south. From a commercial point of view, the elevator in its present position has been a failure, and this is attributed to the insufficiency of the Bordeaux grain trade, to the lack of elevators or storehouses for grain and other goods near the water's edge, and to the indifference of the people of the town, who prefer unloading by human labor to the employment of machinery, however perfect. The elevator has been taken on four trial trips, under the view of two commissions, one public and one private, and is said to have turned out a capital sailor, answering the rudder perfectly, and going six knots an hour.

A general congress of the bakers of France has been sitting from June 22 to 25, in the Rue de Lancry, Paris, under the presidency of M. Gatimeau, Deputy, to consider certain grievances of which the trade has long complained. First and foremost was the power of arbitrarily fixing the price of bread, which a law 93 years old gives to the municipal authorities of France. It was resolved that the abrogation of this law should be demanded of the Legislation by petition, and a persistent agitation for its repeal set on foot. The Congress also recommended that in future plain or household bread should be sold by weight only on the customer's demand; that all fancy bread should be sold by the piece; that a uniform standard of 100 kilos, (220 lbs.) should be adopted for flour; and that a special grain and flour market should be erected in Paris. A committee was appointed to carry out these objects by agitation in the Houses of Legislation or otherwise.

A tool for Cutting, Leveling and Polishing the Furrows and Face of Millstones.
Eight inches long, 2½ inches wide, 1½ inches thick. Received the highest and only Award given to Polishers at the Millers' Exhibition, Cincinnati, Ohio, June, 1880
For facing down high places on the buhr, this tool has no equal, and can be done much better and in one-sixth the time than with the mill pick. It is much larger, cuts better, can be used on either face or furrow, can be used until the corundum is entirely worn out on one side and then turned on the other side. Has over four times the amount of corundum and when the corundum is worn out can be replaced in the handle at a small cost. Sent by express, $3.50. Satisfaction guaranteed, or money refunded. Address

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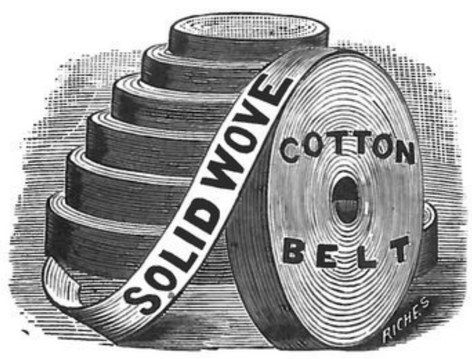

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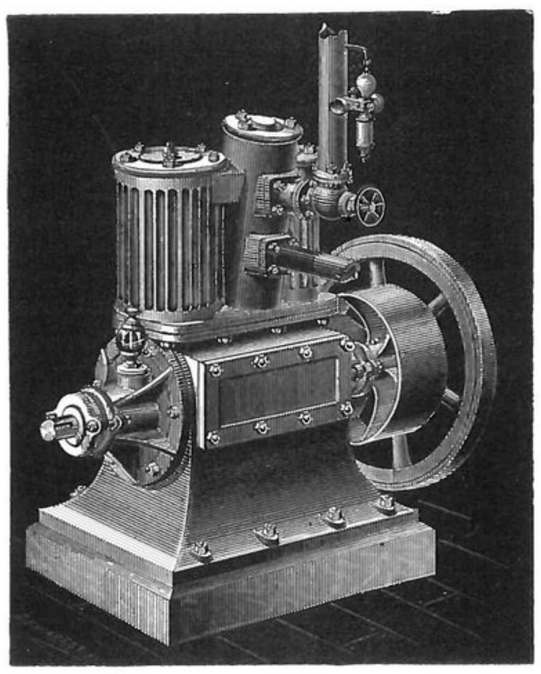

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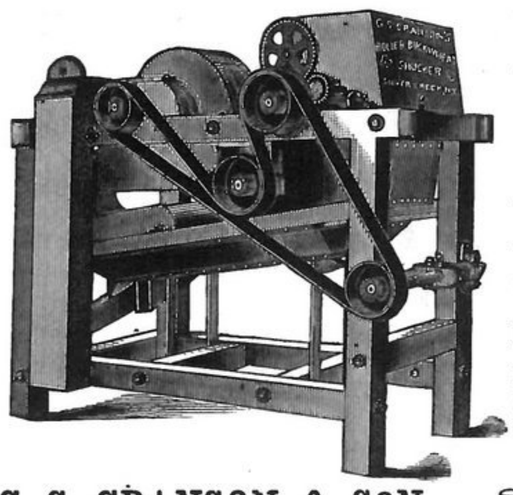

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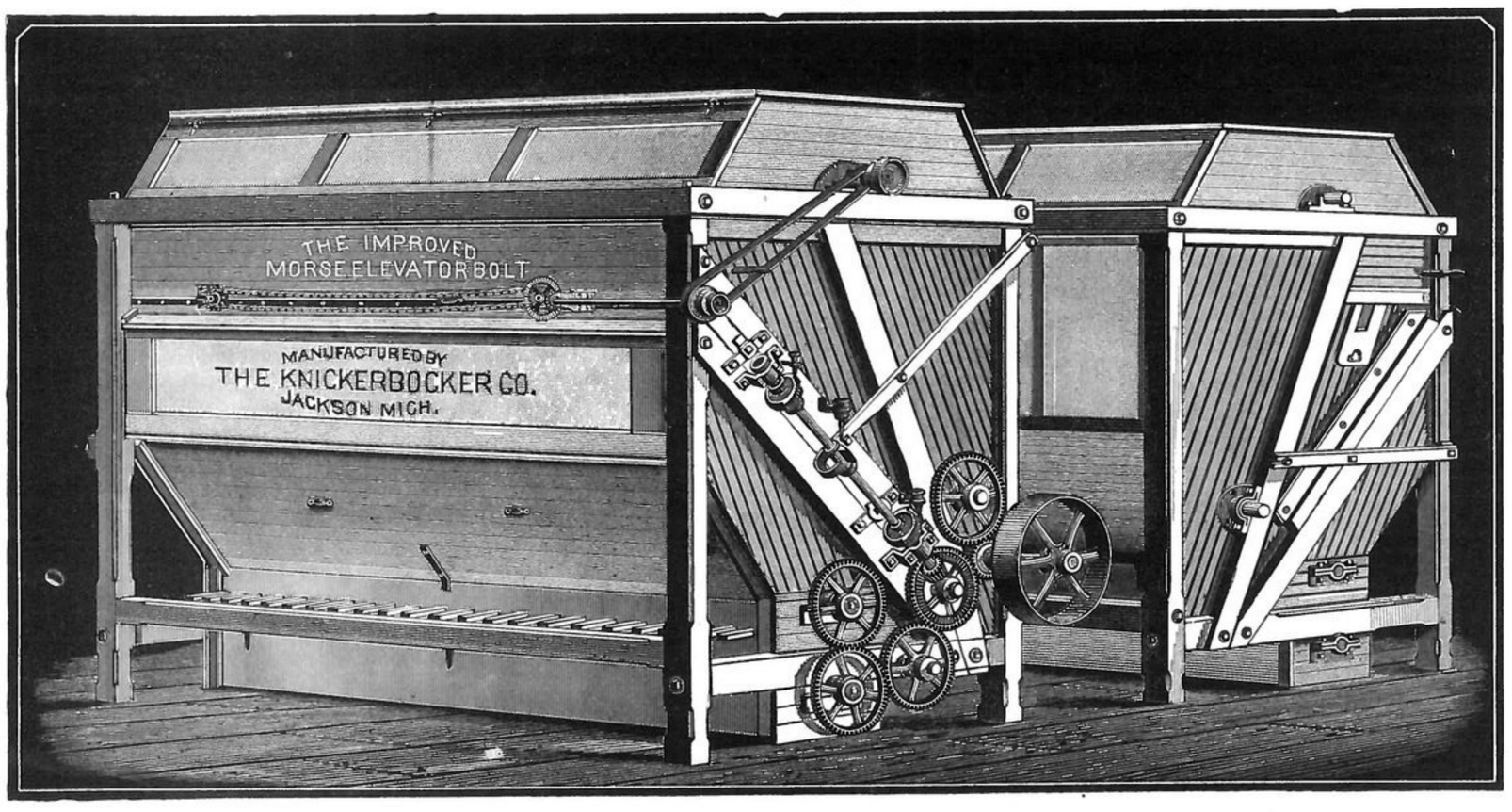

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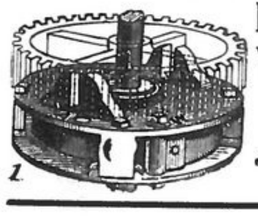

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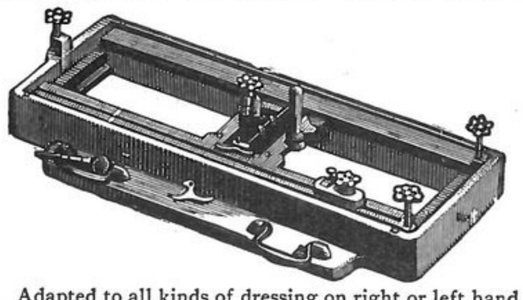

Adapted to all kinds of dressing on right or left hand burrs; also convenient to place machine over spindles, which are ample wide. All adjustments are quick and easily made without the use of any tool. By the use of this rod feed deeper facings can be done by once going over the face, as the feed can be set to over 1,000 cuts per inch, and is instantly regulated as desired, to suit the depth of cut, in other words to cut fine or coarse when in motion, making it complete, and a great saving of time in this respect, as well as others. For ease of operation and adjustment it is far superior, also for merit and simplicity. All is fully guaranteed to be as represented. Machines have now been in use for four years, and not a single call has been made for any repairs. Also a new Improved Patent Diamond Holder, which is specially adapted to hold any shaped diamond; convenient to set a diamond. Machines will be forwarded on their own merit, by parties giving good references. Send for circulars giving full description.

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FIRST AND ONLY PREMIUM
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THE Grain and Flour Trade

Office of THE MILLING WORLD.
Buffalo, N. Y., July 23 1884.

How freely will new wheat come forward is a question that many would be glad to intelligently answer. If it is held by farmers for increased prices in all probability an advance in values will, at least temporarily, be effected, but that the advance will be temporary admits of hardly a doubt. Our contemporary the New York *Produce Exchange Reporter* puts the case in this way: "The rate of freight during the ensuing three months is likely to be of vital importance in shaping values and stimulating shipments. There is now no doubt that the exporting power of the country will be large, but it does not follow that our shipments will be very liberal because we happen to have a large surplus, but the prices bid will control the movement from the interior very largely. It should not be forgotten that our domestic requirements will after the 10th of August have to be filled very largely from the new crop and this aggregate is of far more importance than the public have any correct idea of. The first rush from the south and southwest may give us more than we can conveniently take care of, because the wheat is likely to be too soft to hold, and the first receipts may not be in a condition to ship with safety, so that the first month's experience may not prove any indication of the future course of the market. Most business men who entertain a good opinion of wheat, do not seem to have the pluck to invest in it, because nineteen out of twenty dealers differ from them and they are unable to stand up against public sentiment which is so strongly against them. A year ago the reserves of the world, it will be remembered, were large but now they are invariably small, are diminishing daily and on the 1st of September, the stock of old wheat in the world will be smaller than it has been at any time since 1869, hence we commence the new cereal year with very small stocks indeed, and the prospects, it seems to us, are exceedingly favorable, as we start out with prices unusually low all over the world. With a crop of wheat three-quarters No. 2 red, and the balance mainly No. 1, we feel confident we shall have no troubte in marketing it, and after the 1st of September we shall not have any old wheat to mix with the new, so that the bottom of the grade will be about as good as the top, and the former reputation of our No. 2 red in Europe will soon be restored. The rapid depletion in the visible supply is worthy of note, during August the old spring that is not exported will go into consumption, and the old winter will nearly all disappear this month."

While foreign advices are not quite so favorable as those of a month ago, it is quite generally anticipated that in quantity and quality wheat yields in importing countries will not be of that lean character which has ruled for the past three years. It is, perhaps, also generally recognized that supplies from this country will, at least for some months, be taken as lightly as possible and at the very lowest price at which the commodity may be purchasable. The necessities of our farmers will in a measure control the freedom with which the new crop will come forward. If the crop is held back we may, as before remarked, anticipate advanced values, but when these values reach a point which promises remuneration to the grower, wheat may be so freely placed on the market as to occasion a quick tumble, and were we to hazard a prediction we should say our wheat markets will, the coming fall, be subject to a series of slow advances followed by marked and quite rapid declinations, brought about very largely by legitimate causes.

A highly gratifying feature of the wheat harvest, now rapidly closing, is the almost uniformly superior quality of the grain. We again quote from our contemporay: "Present indications point to the largest and best wheat crop ever raised in this country, much of it already harvested and with good weather during this and next month, there is a good reason to count on a crop exceeding 500,000,000 bushels, and in quality equal to any ever harvested. The increase in weight over last year, is a very important gain, adding largely to our exporting power. The new flour exhibited this week has proved very handsome, some samples very beautiful, in color, and in strength unrivalled. We regard them as very creditable indeed to the miller, and indicating a steady advance in the milling industry. Some of the St. Louis brands are a great credit to that city, they are about as near perfection as they can be, and their great strength as compared with last year, is a full confirmation of the superior quality of the new crop of wheat."

The *Commercial Bulletin* finds the flour market, without quotable change, and generally firm in tone. Stocks are low, but holders are not pushing for business. The low grades especially are limited in supply. The few that are offered are quickly picked up by exporters, who are willing to pay the relatively high prices that are asked for No. 2, supers and low extras, although the figures current in this and the foreign markets appear to show a loss of a shilling or two for the shipper. There are a few samples of the new wheat product in this market. They represent a very superior quality of flour for early receipts. The further advices from the milling sections unite in praising the new grain for its unusual high average of soundness and its unusual proportion of dryness and hardness, which makes it immediately ready for the stones, with a small mixture of old grain. Rye flour is quiet, but very firm at full prices. Corn goods are generally steady, with a moderate demand. Bag meal is quiet and easier. Mill feed moderately active and easier.

FOREIGN EXCHANGE.

Sterling was firm and without much activity, the supply of commmercial bills and the inquiry therefore both being very limited. The posted rates closed at 4.84 for sixty-days' and 4.86 for demand. The actual rates ranged; At 60 days' sight, 4.83@4.83½; demand, 4.85@4.85½; cables, 4.85½@4.86, and commercial, 4.81½@4.81¾. Continental exchange very quiet: francs, 5.20⅝@5.20 and 5.18⅛@5.17½; reichsmarks, 94¼@94½ and 94⅞@95⅛; guilders, 40 and 40¼.

The closing posted rates were:

	60 days.	30 days.
London	4 84	4 86
Paris francs	5 18¾	5 16¼
Geneva	5 18⅞	5 15⅝
Berlin, reichsmarks	95	95⅝
Amsterdam, guilders	40⅛	40⅜

BUFFALO WHEAT MARKET.

Buffalo, July 22d, 1884.

Our grain market has been quite brisk during the past week, and our local millers have bought freely all good wheats offered. Rochester and other interior points have been drawing on our stock very largely, and they have reduced the amount of wheat in store here over 200,000 bushels. No. 1 hard spring held firm at $1.06. Amount here about 50,000 bushels, but most of it is held out of the market. No. 1 regular sold at $1.00. No. 1 Green Bay Spring sold at 92@94c. There have been a few carloads of new Red Winter received and sold at $1.00. There are now two or three cargoes on the lake which will be here in two or three days, it is very handsome and will bring good price. Corn in good demand, the cold weather has favored the Chicago "Bulls" and a sharp advance of 8c. is the result. There is no straight No. 2 here. No. 3 sold at 57@58c. Market bare at present, but we are expecting large receipts this week. Oats in good demand for car-loads, and prices firm. No. 2 white, 38½c; mixed Western, 35@37½. Other grain nominal. JAMES S. MCGOWAN & SON.

BUFFALO MARKETS.

FLOUR—City ground clear Duluth spring $5.00@5.50; straight Duluth spring, $5.50@5.75; amber, $5.50@5.75; white winter, $5.25@5.50; new process, $6.50@6.75; Graham flour, $5.00@5.25. Western straight Minnesota bakers, $5.50@5.75; clear do, $5.00@5.50; white winter, $5.50@5.75; new process, $6.50@7.00; low grade flour, $2.50@4.00 CORNMEAL—Market steady, with a fair demand. Coarse, $1.15; fine, $1.25 per cwt. RYE FLOUR—In fair demand at $3.75@4.25. OATMEAL—Ingersoll, $5.75; Bannerman's granulated, $6.00; Schumacher's Akron, $6.25 per bbl. BUCKWHEAT FLOUR—Demand fair at 3.50 per cwt. WHEAT—Holders of No. 1 hard Northern Pacific asking $1.06 cash; $1.08 bid August, and $1.08 Sept. No. 1 regular do. held at $1.00 cash. Red winter nominal at 92@93c. No white winter here. CORN—No. 2 held at 60c cash. Sales two car-loads No. 3 at 57c on track. OATS—Market firmer. Sale two car-loads No. 2 white at 39c. BARLEY—Season over; market nominal. RYE—Last sale of No. 2 Western was made at 72c.

THE WHEAT OUTLOOK.

Telegraphic and mail advices for some time past have told a uniform story as to the condition and prospects of the domestic wheat crop. The Agricultural Bureau has uniformly corroborated the favorable advices from independent sources, and the general understanding, both at home and abroad, is that the wheat crop in the United States in 1884 will prove a full average. On this point, of course, there is some diversity of opinion. The lowest estimate as to the probable outcome of harvesting is that made by the statistican of the New York Produce Exchange, who places it at 468,380,000 bushels, based on the average crop of the three previous years and the statement of the Agricultural Bureau as to percentages of condition and prospects, an allowance being made, of course, for increase of acreage. The "press estimates" of the yield on the Pacific coast are also discounted. It is well that this was done, for latest advices from San Francisco point to a material reduction in the earlier reports. The telegraphic account states that "the June rains" caused a loss of 4,500,000 bushels, or 7½ per cent. on the gross yield there, which in May was estimated at 60,000,000 bushels. It is admitted, however, that the figures given for the aggregate, 468,380,000 bushels, will require revision, and that they "may be larger or smaller, as the weather shall determine." This points to something less than a full crop, although indicating an average harvest. One year ago the output of wheat was over 500,000,000 bushels. But it remains to be said that other estimates than those of the Agricultural Bureau range from 480,000,000 to 550,000,000 bushels of wheat for the current year. These, of course, depend on the general favorable conditions which have thus far prevailed.

An examination of the analyses of the state reports of the probable yield by states shows that in all the leading wheat-producing states except Michigan the harvest of 1884 promises to materially exceed that of 1883. The twenty-four wheat-producing states and the Pacific states and territories are credited by the New York Produce Exchange with 330,680,000 bushels, as compared with 294,494,300 bushels in the preceding year, with 391,659,350 in the year before, and with 288,024,830 bushels in the crop year ending in 1881. The eleven spring wheat-growing states (Wisconsin, Minnesota, Iowa, Nebraska, Dakota and New England) are credited with 137,700,000 bushels, as compared with 125,709,900 bushels in the preceding crop year, with 112,526,120 this year previous, and with 95,255,260 bushels in the crop year ending in 1881. This much, in addition to favorable weather reports and a rapid and early progress of harvesting, is all that is known or anticipated respecting the next wheat crop. Across the water the outlook is not so clear. Taking the results of recent harvests in Europe as a criterion, an average yield is 1,110,000,000 bushels. The demands of Europe are one-quarter larger. In other words, she provides but four-fifths of her requirements of wheat. Until very recently the reports as to the outlook in the principal wheat-producing countries of Europe has been very bright. As stated by Mr. Walker, statistican of the Produce Exchange, "if Europe's wheat crop in 1884 should give an output of 80,000,000 to 100,000,000 bushels above an average, an advance of ocean freights of any considerable moment could not be maintained. An advance of ocean freights has been made and the home crop outlook, with the exception of the loss on the Pacific coast noted, is unchanged. The interest in the situation, therefore, centers mainly in Europe." The latest advices from the United Kingdom, from France and from Germany, are less favorable, and the increased firmness in those markets has been reflected in stiffer views here and in a rather better tone to the whole breadstuffs market. On the other hand, the depression in the manufacturing industries in England, France and Germany has reduced the capacity of the people to buy bread or flour, and as the previous season's production of potatoes was heavy, that vegetable has, to a large extent, come into use as a substitute. The outlook from India is for a smaller exportable surplus than during the past crop year, and in Austria and in Roumania there has been some damage done the wheat crop. From Russia the advices are variable. In the south there will evidently be less wheat for export than has been expected. Within the current month, however, the price of wheat in Europe has been at a very low ebb, nearly as low as "the lowest for the century," and on July 1 the reports of stocks in the United Kingdom, in France and Germany, were still above the average of those customarily carried over. All of these points certainly conflict to some degree and lend more or less uncertainty to the situation. Nevertheless, the bullish feeling of operators on this side recently manifested has been sustained for a longer period than at any one time previously during the past crop year. The fact that harvesting of winter wheat has progressed so rapidly, has shown so uniformly an excellent quality of grain, and the additional facts that farmers have been free to send it to market and that exporters have been ready and willing to buy, have one and all given a somewhat unusual stimulus to the trade, notwithstanding the absence of any marked advance in quotations. The New York *Produce Exchange Weekly*, in its last number, said: "There is probably, on July 1, 1884, 50,000,000 bushels of wheat from old crop held in the country in the visible supply, in the hands of growers and in the form of flour." A careful examination of the accepted totals of the production, surplus, consumption and other requirements, finds this estimate plenty large enough.

As near as can be estimated the total wheat production in the United States last year was 420,000,000 bushels. The surplus carried over from the year before, the visible supply, the invisible stocks and the wheat held by mills as flour, amounted to about 60,000,000 bushels of wheat, which represented a total available sapply of wheat (and flour) on July 1, 1883, equivalent to 480,000,000 bushels of wheat. The requirements therefrom during the past twelve months have been as follows: Exports of wheat and of flour, in wheat equivalent, over 106,000,000 bu; requirements for seeding between 37,000,000 and 38,000,000 acres, 53,000,000 bushels; for consumption as food, 252,000,000 bushets; to be used in mechanical processes, 15,000,000 bushels, and the loss due to low quality of the cereal, 14,000,000; or, in all, a consumption of 440,000,000 bushels. This indicates a surplus carried over July 1, 1884, amounting to 40,000,000 bushels. As the visible supply reported June 28, 1884, amounted to 14,222,258 bushels, it may be roughly stated that the "invisible supply"—wheat in farmer's hands—and the quantity of flour remaining in first hands was, in bushels of wheat, equivalent to about 26,000,000 bushels of wheat.

From this it is noted that the United States carries over 33 per cent. less in stocks of wheat and flour than one year ago, which may go some way in offsetting the British and continental stocks of more than normal size. Prices for a year past have been exceptionally low and the stocks unusally small in proportion to the population. The present is the "between seasons," when it is difficult to form a correct view of the course of the market of the future. The stagnation in the ocean freights market has caused the laying up of considerable tonnage. The crop here will be a full one, but it is a matter of exceeding doubt if the average in Europe is to be exceeded. It is probable, then, that a brisk movement at better prices, in view of relatively low stocks carried over in the United States, may characterize our autumn's foreign trade in breadstuffs.—*Bradstreet's.*

NOTES.

In one or two ways, says the Baltimore *American*, we are not quite so agricultural as we could wish. We import 6,000,000 bushels of barley, $20,000,000 worth of flax and $91,000,000 worth of sugar annually. We also import hay and potatoes, eggs and cabbages, making this country a sort of one-sided "garden of the gods."

Louisville dealers are advised by their seaboard correspondents, says the *Courier Journal*, that a sharp discrimination against "steamer' wheat is to be enforced this year. That class of wheat is in a damp condition, grading according to the degree of dampness, but otherwise more or less sound. The designation implies that it is available for shipment on steamers only, and not on sailing vessels, on account of its liability to spoil on long voyages. Ordinarily this wheat sells within 3@5c of No. 2, but New York advises that it will sell this year 10@20c below No. 2, and some Baltimore firms write that it will not be wanted there at any price. Farmers, it is to be hoped, will find in this an extra inducement to avoid the sacrifice, always unnecessary, of threshing their wheat too soon after cutting, or in a damp condition. Experienced dealers say that wheat threshed out damp can never be fully reclaimed. If the season be unfavorable for threshing, it is much the better policy to wait, and even stack. Indeed, the grain from well stacked wheat is nearly always worth a premium for its merits. In one or two countries of Europe millers rigidly insist on the stacking of wheat, and refuse to bid on any other. A farmer who fears the future course of the market, and hastens his wheat forward in a damp condition, will lose more on the grading than he will save by anticipating the market. If thoroughly ripe and dry, the case is quite different.

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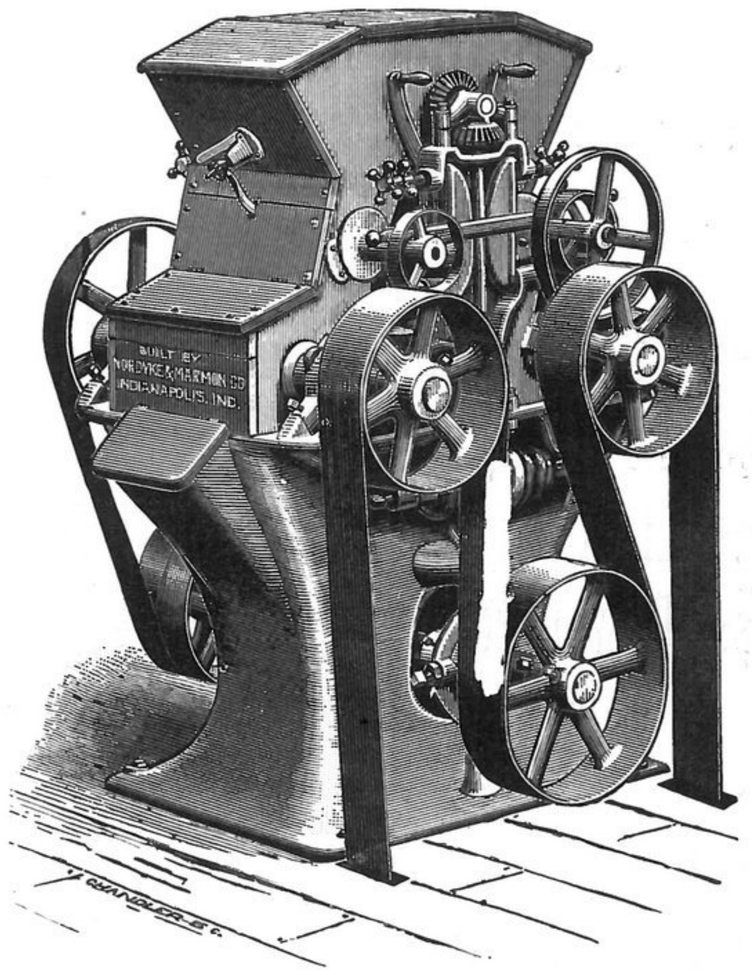

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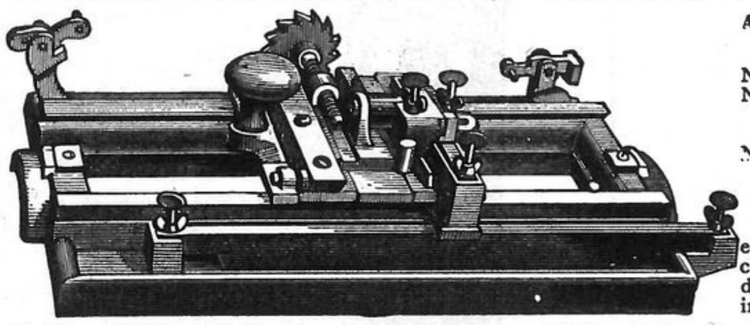

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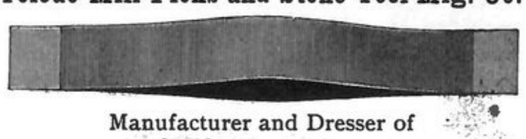

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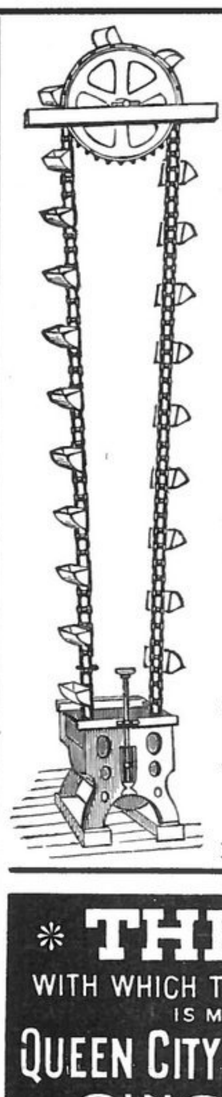

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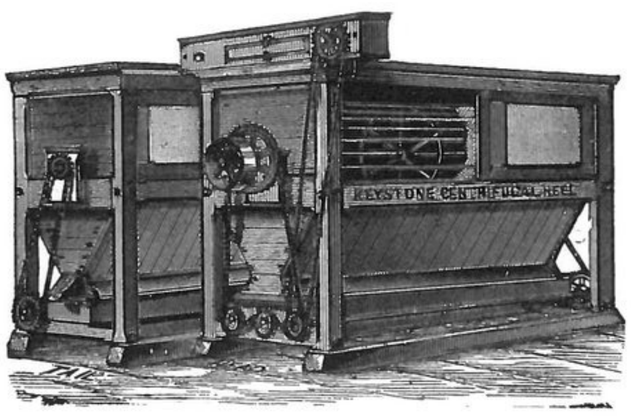

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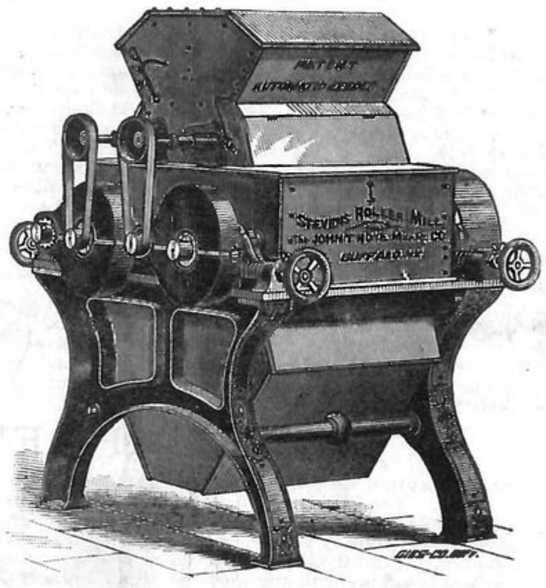

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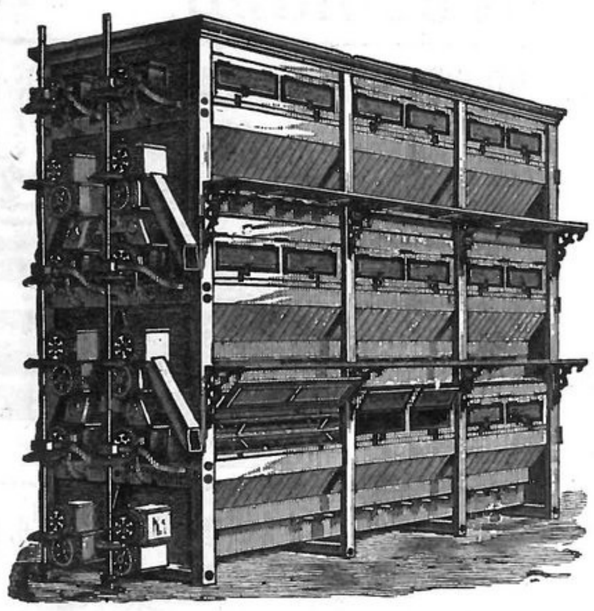

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